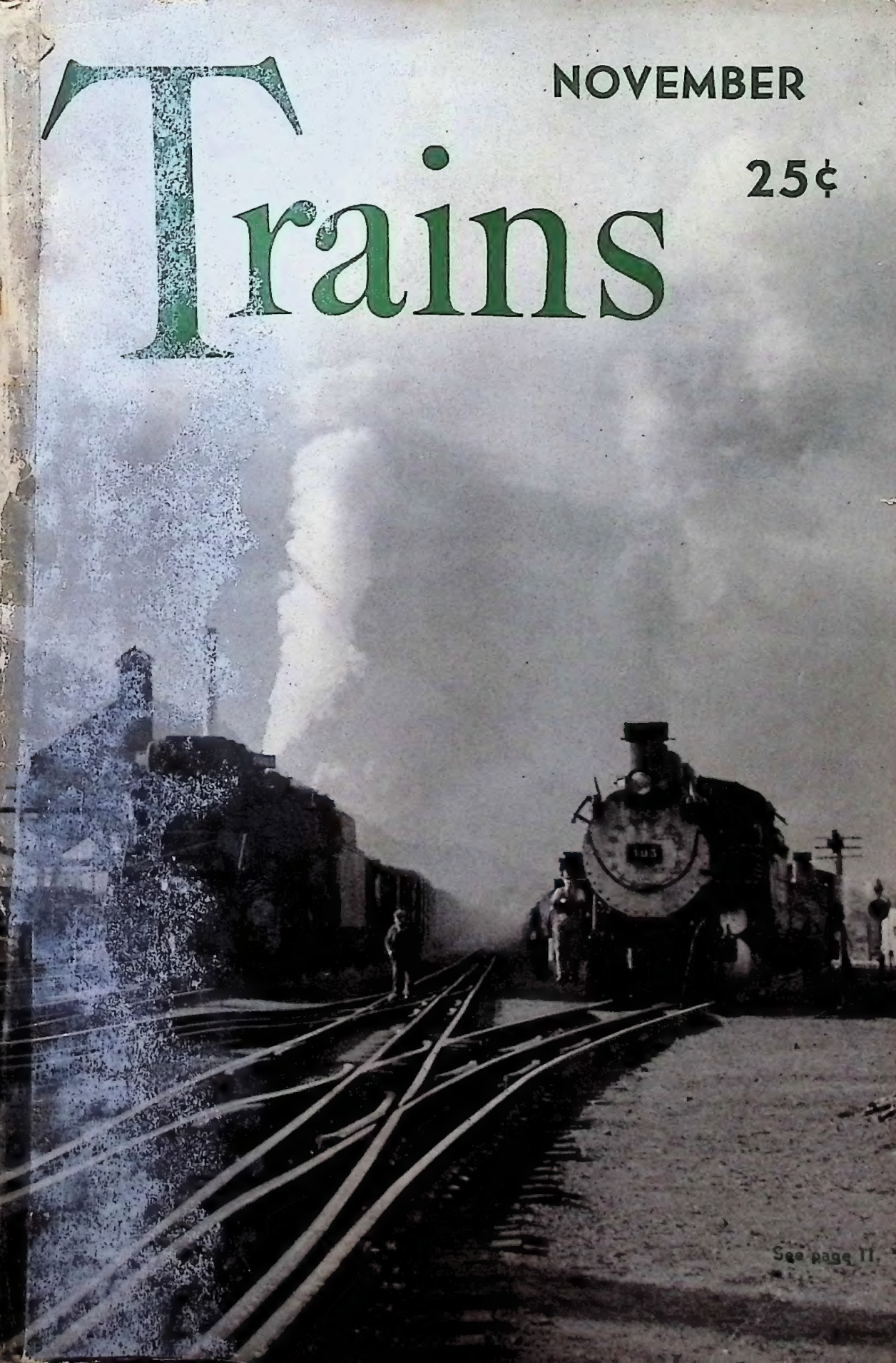
Trains

NOVEMBER

25¢



See page 11.

Donald W. Furler, 65 Glen Rock Ave., Glen Roc

Lehigh & New England dynamics.

Northeastward from the anthracite sector of eastern Pennsylvania points Lehigh & New England, a connecting link paralleling the seaboard and carrying principally coal to New England and New York connections at Campbell Hall, N. Y. No. 301 is a heavy Consolidation, Class E-14, and is here pulling 55 cars north of Goshen, N. Y., on Erie tracks which are leased by L&NE as part of its main line. The train is from Campbell Hall, destined for Pen Argyl, midway toward the west end of the line. Campbell Hall is an intriguing spot north of the state of New Jersey, just west of the Hudson River, and with connections of the New York, Ontario & Western, the New Haven, the Erie, and the New York Central.

Waybills

Do you watch the other passengers when you travel by train? I think it's a lot of fun. I've noticed that women tend to take end seats in coaches, most uncomfortable because right over trucks, while men, perhaps more travel-wise, choose seats near the center of the car. Some passengers grab shady-side seats while in the station without figuring ahead as to which side of the train will be shady for the greater part of the run, while others are more canny about such matters. And there's always the passenger who decides at the last minute that he wants a magazine from the station newsstand and who expects the conductor to hold up the train for him.

Long distance trains have a perfectly miraculous ability to make up time in the last 50 miles or so of a run. The *Limited* may be 15 or 20 minutes late at every station along the way until it finally seems to spurt down the home stretch and into the terminal a minute or two sharp. Perhaps this isn't so miraculous after all. Perhaps the *Limited* doesn't even have to spurt. Fact is, if you examine most long distance schedules you'll find a substantial extra time allowance in the end portion of the run.

Is your file of TRAINS complete from the start? First issue was dated November, 1940, and there has been one every month since then. We can furnish them at 25 cents each. Annual subscribers can have subscriptions started with the first number. Send your order now while we have all issues.

A. C. K.

Trains

Editors: A. C. Kalmbach, Linn H. Westcott, Willard V. Anderson

Vol. 2 November, 1941 No. 1

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The first issue of TRAINS was for November, 1940.
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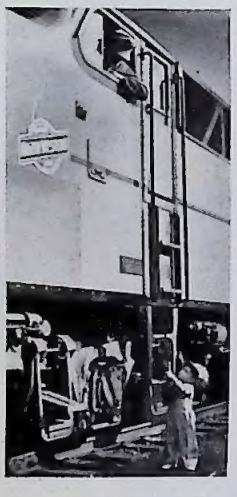
Saga of the "400"

★ **It was just an ordinary Pacific which started the high-speed Chicago-Twin Cities service.**

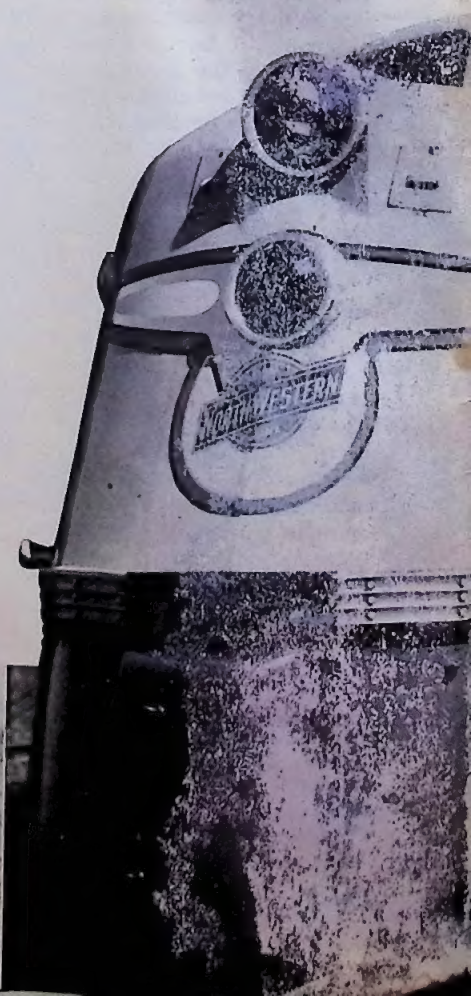


DECEMBER, 1934. A revolution in the Chicago-Twin Cities railroad passenger service was in the making. The Burlington planned to use a Diesel streamliner on the run. The Milwaukee planned to use specially built, newly designed steam locomotives to speed its day service. But no one expected the Chicago & North Western announcement, late in the month, of a seven-hour standard steam-powered train for the 409-mile run.

Thus it was that the *"400"* on January 2, 1935, inaugurated a new era in rail service over one of the country's busier travel routes. Heavy Pacifics were rebuilt for this service, and engines were changed at Milwaukee, mostly because there is no station wagon spout and a change was the easiest way to replenish the tender tank. Standard car equipment was used.

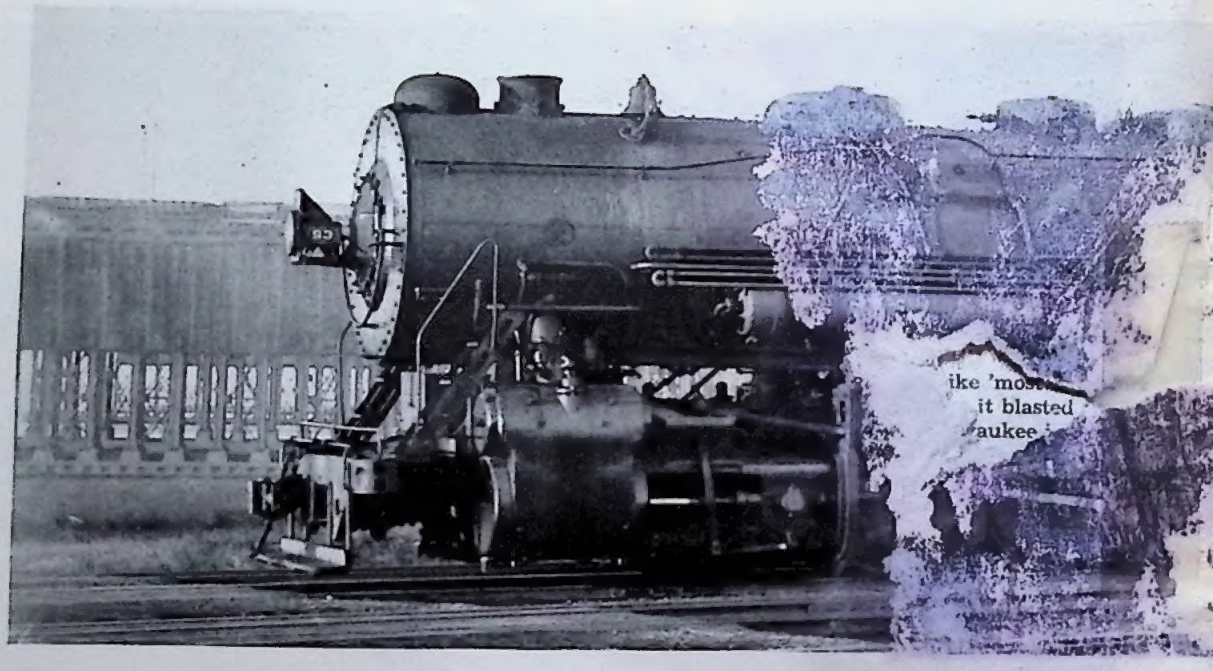
But the gayly colored *Hiawathas* and the gleaming *Zephyrs* came with Spring and won a larger share of the business. So new streamlined cars and Diesel locomotives were later ordered for the *"400"* and put into service September 24, 1939, earning a 58 per cent passenger increase. Running time is now 6¼ hours. The other roads have not stood still either, and even now the Milwaukee is building two new *Hiawatha* trains to go into service in January, 1942, the fourth set of trains for this run. Whatever road one rides, competition has made the Chicago-Twin Cities trip one of the best train rides in the United States—and one of the best patronized.

At first the *"400"* looked like 'most any other fast steam-powered train as it blasted up the lake front grade out of Milwaukee in the late afternoon (right), but less than five years later it had become a streamliner (bottom, leaving Chicago). The North Western trackage along the bluff overlooking Milwaukee Bay is one of the prettiest railroad approaches to any big city in the country. The photo in lower left corner shows an extra section of the *"400"* powered by one of the single-unit Diesels which the North Western will soon use with new lightweight cars for improved local service between Chicago and cities in Wisconsin, upper Michigan, and Minnesota.



R. H. Kindig, 3831 Perry St., Denver, Colo.

Earl Ruhland, 2614-B N. 2nd St., Milwaukee, Wis.



Duluth, Missabe & Iron Range

★ In the land of short, stubby cars and long, heavy trains.

By H. P. Scott.

"Sorry, mister, but you can't stop here. You'll have to move on."

I had really not the least cause to argue with the gentleman. A bridge is not ordinarily an appropriate place to park an automobile, and certainly a bridge over a railroad yard is no place to loiter in these particular times. Besides, the yard bull was over six feet tall, broad shouldered, and looked through me in a calm and serious way that showed he meant business. However, the sight of 5000 cars at once, all loaded with the same freight, was worth some risk, and then there was that matter of the switcher.

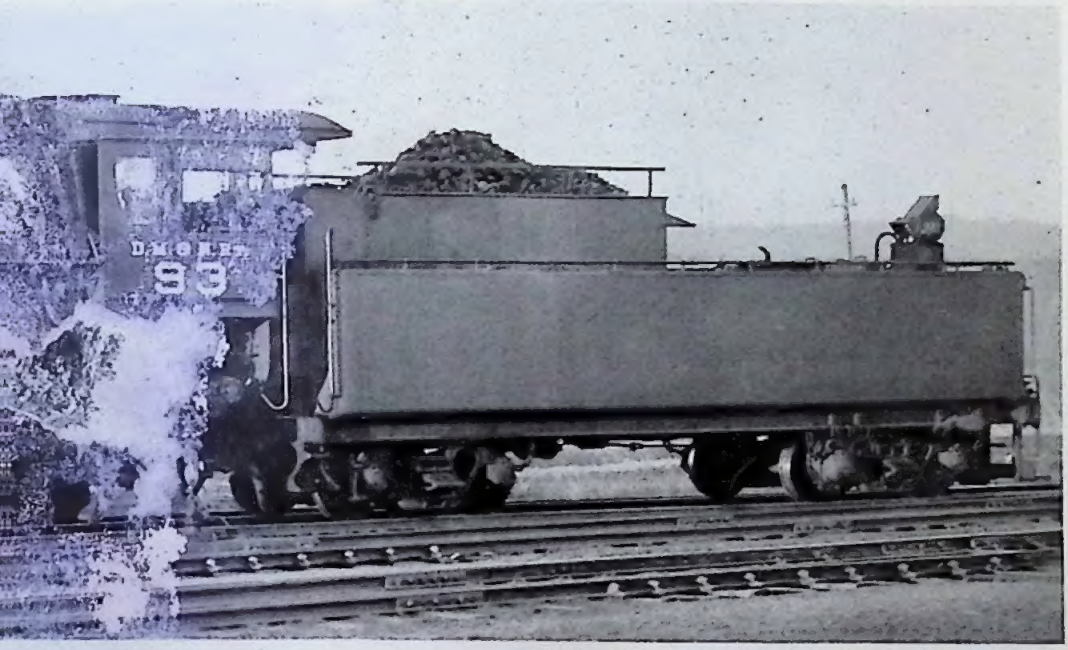
"Yes, sir," I said, "I'll move right along. I'd like to ask just one question. I understand that you have the heaviest switch engines in the world right here, and I wonder if that is so."

The big man's face lit up and he said, smiling, "Oh, you mean our 90's. I guess they're some of the heaviest, any way. Come over here and I think you can see one coming up the yard with a drag right now."

I did "move on" in the friendly custody of Mr. Detective, and we started talking about iron ore and the interesting things involved in its transportation: of short, stubby cars and long, heavy trains, of mixing ore in batches of 10,000 tons, of beneficiation by sintering, of docks and "trappers," and long, slow-moving ships.

Growing from that conversation has come this story of the Lake Superior iron ore country, of the railroads which transport ore, and particularly of one railroad which is an excellent example of a highly specialized freight carrier.

To begin with, we all have at least a vague idea that iron ore is the raw material from which pig iron (and later, steel) is made. We probably know that iron is found and mined all over the world, and we are proud of the fact that this country is outstanding in its pro-



Collection of Roy W. Campbell, 6916 Cedar St., Wauwatosa, Wis.

giest switcher.

iron ore traffic of the Duluth, Missabe & Iron Range is the ison of many a superlative: heaviest trains, nearest to single-uct classification of traffic, and world's heaviest standard steam hing locomotive. There may be heavier articulated or extra-locomotives used in switching service, but here's an 0-10-0 which ss 352,252 pounds and exerts tractive effort of 86,000 pounds. Built aldwin Locomotive Works in 1928, the series is numbered 90 to 93.

ion and use of steel. Commercially useful ore exists not only around Lake Superior m small quantities in various parts of the ed States. The territory around Birming-Ala., has a peculiarly happy combination ailable ore, soft coal, and limestone which been the primary factor in building that industrial city of the South. Iron ore is mported, to feed blast furnaces along the rn seaboard.

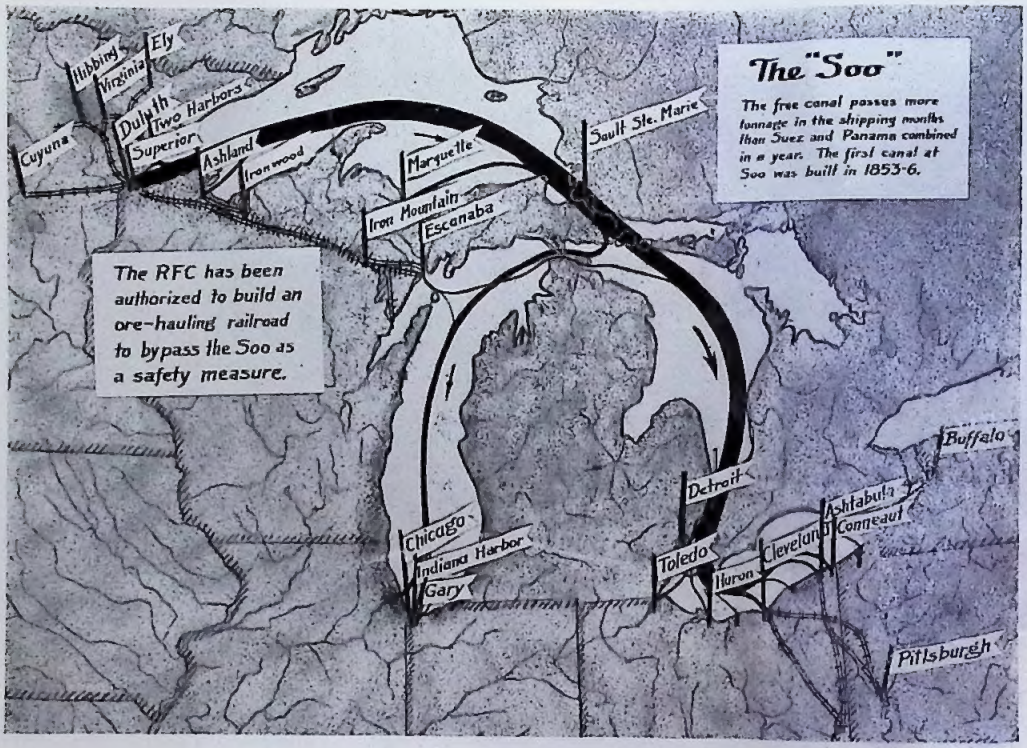
wever, the most important source of iron is country lies in a group of six "ranges" e territory around Lake Superior. An range is not necessarily a range of hills, gh it is usually in rocky, hilly country; it is an area of a good many square in which iron ore of commercial quality lable. There are six such ranges in the Superior district: Marquette, Gogebic, minee, Vermilion, Mesabi, and Cuyuna. rst iron deposits in the Marquette Range discovered in 1844. The ore deposits in yuna Range have been located only recently, about 1904. The Marquette Range is named after the famous Jesuit priest who, with Joliet, explored so much of the Middle West. The Vermilion Range is said to get its name from the fancied color of the ore which was noticed there, and the other four are names of Indian origin.*

Back in 1848 the first ore from the Marquette territory was loaded in barrels and sent by sailboat east on Lake Superior and down the St. Mary's River, laboriously portaged around the rapids ("rapids of the St. Mary" is the English version of Sault Sainte Marie), and then on its long way to Cleveland.

Then, as now, low-cost transportation by water was used on the long miles down through the Great Lakes to reach the coal supply and the blast furnaces along Lake Erie and in the Pittsburgh area. Then, as now, the problem of land transportation for ore was the same: to haul heavy bulk material down the hill from mine to harbor, load it on boats, and bring the empty cars back up the hill to the mine.

The first ore was hauled by team, and an early historian tells us that three six-horse

* *Mesabi* means giant, and appropriately so, for this range is the greatest source of iron in the entire world.



Linn H. Westcott.

Heavy trains and big boats move the iron ore.

The iron ore flow from mine to blast furnace is one of this country's most important transportation jobs, and it takes both heavy duty railroading and a fleet of Great Lakes boats to keep the red earth moving. The heavy lines on the map of the Lakes (above) indicate graphically the extent of ore traffic from the various ports on Lake Superior to the receiving ports on the lower lakes. The more important railroad connections at each end are also shown. Because of the possibility that the Soo Locks may be bombed, the Reconstruction Finance Corporation has been authorized by Congress to build a railroad to bypass this danger area and deliver ore directly onto Lake Michigan. The network of railroads near Duluth (see map on opposite page) is mostly Duluth, Missabe & Iron Range trackage, with main ore lines double tracked.

teams hauled a total of three tons a day over 10 miles of "execrable road."

In 1857 the 16-mile Iron Mountain Railroad was built from the mine to the dock at Marquette Harbor, and it used four-wheel cars carrying eight tons each, a tremendous improvement over the wagon teams. By 1861 this little road was hauling 49,000 tons of ore in a season, and with the coming of the Civil War traffic grew to 204,000 tons by 1863. It is interesting to note that initially the Iron Mountain Railroad received $1 a ton for its 16-mile haul and that this decreased to 32 cents by 1894. Nothing particularly new about the idea of increasing traffic and decreasing costs!

The rapid expansion of the railroads after the close of the Civil War brought heavy demands on steel for rail, bridges, and other structures. During the war an average of 900 miles of railroad was built each year in this country. In 1866 this figure jumped to 1716, and it reached 7379 miles by 1871. As a result, the market for iron ore grew by leaps and bounds, so that new sources and new outlets were sought.

In 1864 the Chicago & North Western opened its Peninsula Line, tapping the Marquette Range at Negaunee, Mich., and running 62 miles southeast to the docks at Escanaba. (Escanaba, by the way, remains to this day the only lake port *not* on Lake Superior which is shipping iron ore.)

It may be well to turn our attention at this stage of the game to that vital link in the system of ore transportation through the

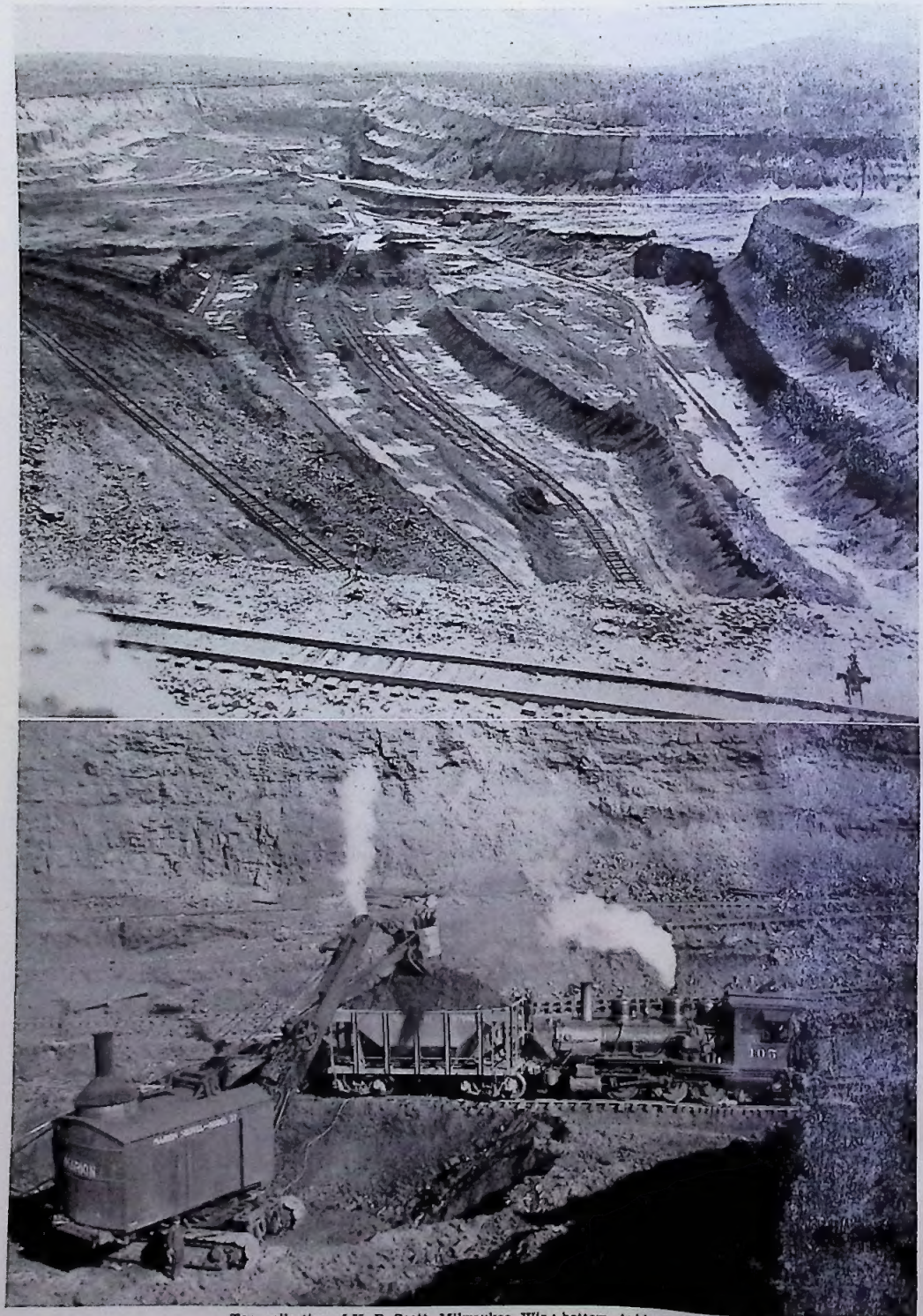
Linn H. Westcott.

Great Lakes, the Soo Canal. Over a hundred years ago, before iron ore was discovered in the North country and when the main traffic from Lake Superior was furs and lumber, far-sighted people could see the advantage of a good canal and locks to avoid the portage at St. Mary's Rapids.

Lake Superior, you see, is 20.4 feet above the level of Lakes Huron and Michigan, and although the St. Mary's River (or perhaps channel is a better name for it), connecting Lake Superior with the waterways to the south, is about 75 miles long, over 18 feet of the drop occurs within a couple of miles as the water tumbles down the rapids. Adequate locks which would lift or lower boats past the rapids would make direct shipments possible from Duluth all the way to Buffalo.

However, the folks 'way down East were not at all convinced of the desirability of spending large sums of money in such a distant and uncivilized territory, and when (in 1837) Congress was asked for a canal appropriation, Henry Clay said the project was "beyond the remotest settlement in the United States, if not in the moon." As the years went by and traffic increased, opposition decreased, and finally, in 1855, a canal and locks were built by a private contractor in exchange for 750,000 acres of land. The canal was a little over a mile long, 100 feet wide and 12 feet deep, and had two nine-foot locks each 70 feet wide and 350 feet long which were very liberally designed to accommodate three sailing ships and a tug all at once.

Traffic through the Soo Canal grew at a tre-



Top, collection of H. P. Scott, Milwaukee, Wis.; bottom, Aubin Studio, 1081 3rd Ave., Hibbing, Minn.

Railroading in a man-made canyon. Nearly as impressive as the Grand Canyon is this bright-hued hole dug by man in the hills of northern Minnesota. Right into the hole itself runs the railroad, with switchbacks, grades, and curves of ever-shifting track over which switch engines pull short trains of stubby cars carrying newly mined ore.

mendous rate, and in 1883 it was deepened to 16 feet, and new locks 515 feet long were built. This larger canal made 3000-ton ships possible and permitted a freight rate from Duluth to Buffalo of .15 cents per ton-mile. In 1895 the Canadian government built locks 20 feet deep. The United States provided locks 800 feet in length, with a channel 21 feet deep, in 1896. At the present time there are over 300 ore bottoms plying the Great Lakes, averaging over 8000 tons capacity. Eighty-four of these long steel monsters of the inland oceans each can haul 10,000 tons or more; and one, the *Coulby*, owned by the Inter-Lake Steamship Company, can swallow 13,000 tons of iron ore—which, in terms of railroad capacity, is 260 carloads. Moreover, the United States Steel Corporation now has under construction in various ship yards four boats of 20,000 tons capacity, and other big fellows will be ready for service next Spring.

The importance of the Soo Canal can best be realized by comparing the tonnage which is handled with that of the Panama Canal. Recent figures show a total for a year of 28 million tons for the Panama Canal as compared with 54 million tons of iron ore alone, through the locks of the Soo during the seven-month season of navigation. This year the Soo is handling over 77 million tons, and next year the total may well reach 100 million.

HAVING dismissed very briefly the water-borne part of the ore transportation story, we can come back to watch the progress of the iron ranges and their railroads. The first shipment from the Gogebic Range was made in 1884: six flat cars loaded with barrels of ore which were sent to Milwaukee to be tried out in the blast furnaces there. The Gogebic ore was found highly satisfactory and in 1855 the Milwaukee, Lake Shore & Western (which never got anywhere near Milwaukee) was completed from the mines near Ironwood, Mich., to new docks at Ashland, Wis., a distance of some 56 miles. Expansion in the Gogebic Range area was very rapid, but unfortunately the territory was exploited as a stock promotion scheme, with 36 different corporations selling iron ore and "blue sky" at one time in the early history. The Gogebic Range today is an important producer, with both the Minneapolis, St. Paul & Sault St. Marie and the Chicago & North Western serving busy docks at Ashland.

About the same time that the Gogebic Range was first brought into use, the Vermilion Range in far northern Minnesota was made available when, in 1884, the Minnesota Iron Company built the Duluth & Iron Range Railroad for 68 miles almost straight north from Two Harbors. The Vermilion Range furnishes a high grade but very hard ore which must be dynamited and crushed before shipping and which is under from 8 to 25 feet of glacial drift. In contrast to the unethical promotion schemes common in the Gogebic area, the Minnesota Iron Company planned and operated as a well organized and economical business concern, and the D&IR was staunchly built with 60-pound steel, 24-ton wooden cars, and Consolidations which could pull 500 tons, all at a total cost of some three million dollars. We can realize that Minnesota Iron was a money-maker from the start, since in 1887 it shipped 394,000 tons of ore with an estimated mining and rail cost of $2.02, $3.10 freight to Cleveland, and a selling price of $6.30 a ton, leaving a neat profit of $1.18 on each and every ton.

The great open pit mines of the Mesabi Range were opened with the building of the Duluth, Missabe* & Northern in 1892. The Mesabi Range included a number of different mine properties of which the largest was (and is) the Oliver Mining Company. In about 1901

* This spelling is intentional. The range is *Mesabi*, the railroad *Missabe*, and the mining town spells it *Mesaba*. Pronunciation is *Miss-ah'-buh* for all three.

On the cover.

Salida, Colo., Mecca of the railfan; Salida, with big D&RGW articulateds huffing after the climb over Tennessee Pass, top of the world; Salida, with tiny narrow gauge engines starting southwest for their uncompromising attack on the Rockies. The spirit of Salida has been truly captured in "Salida Yards at Sunrise," as Jim Morley, 2635 Etna Street, Berkeley, Calif., calls his photo.

the United States Steel Corporation took control of the Oliver and Minnesota Iron companies, the D&IR, the DM&N, the Elgin, Joliet & Eastern, the Bessemer & Lake Erie, and over 100 ore-carrying ships, thus integrating a vast and far-flung enterprise for steel production. For some years past, the first two railroads have been combined as the Duluth, Missabe & Iron Range Railroad.

The EJ&E, better known as Chicago Outer Belt Line, is on the receiving end in the Chicago area and the Bessemer & Lake Erie takes the ore at Conneaut, O., and hauls it into the Pittsburgh area.

Along in 1898 James J. Hill, the Empire Builder of the Northwest, started buying mines and railroads in northern Minnesota, including the Duluth, Mississippi River & Northern Railroad. This line ran for about 100 miles through the North Woods and tapped some good lumber territory. A year later he bought the Duluth & Winnipeg Railway with an ore dock at Superior, and for several years he built ore traffic by advancing money to independent mine owners in the Mesabi and Vermilion ranges. Back in 1904 the old Eastern Minnesota, which was built from the above-mentioned properties, carried a third of the total output of the Mesabi Range, and today the Great Northern is one of the most important ore carriers.

We will pass over with a quick glance the Menominee Range, which was discovered almost in the lap of the North Western Railway on its way from Negaunee to Escanaba, and the Cuyuna Range, which was found in the heart of Northern Pacific territory in the vicinity of Brainerd, Minn.

With some changes in names and ownership down through the years, we have eight different railroads busily engaged in hauling ore from the Lake Superior ranges to the docks:

Duluth, Missabe & Iron Range.
Great Northern.
Northern Pacific.
Soo Line.
Chicago & North Western.
Chicago, Milwaukee, St. Paul & Pacific.
Duluth, South Shore & Atlantic.
Lake Superior & Ishpeming.

The particular way in which each of these railroads meets its problem in getting ore to the docks would be an interesting story. For instance, the North Western has a nice straight haul from Ironwood to Ashland, whereas the Soo Line uses two sides of a triangle in order to reach the same place. The Great Northern swings more than 20 miles south of its destination and then back in a northeasterly direction to the Superior docks in order to obtain an easy grade and roll a string of cars a mile long behind a beautiful Mallet with shining Vanderbilt tender. Even the Lake Superior & Ishpeming, which you may never have heard of before and which can claim only a total mileage of 164, boasts 1635 specially built ore cars. However, we will confine our attention in this story to one particular railroad, the Duluth, Missabe & Iron Range, and its transportation job.

The light trains are

Let's start with the great open pit mine at Hibbing, Minn., which is about 75 miles northeast of Duluth, and we'll follow the ore from mine to ship.

To do the subject justice we need a word of explanation on the different types of iron mines and their place in the economic scheme of things. Iron, like other minerals, is commonly obtained by sinking a shaft into the ground and then running out horizontal tunnels at different levels from which the ore is hauled in mine cars to the shaft and hoisted to the surface. Iron ore is also found in large quantities in comparatively wide and shallow pits of loose, dirt-like material not far beneath the surface of the ground. In open pit mining for iron, as in the "strip" mining for soft coal which is carried on in parts of the country, the

Roy W. Campbell collection.

the uphill ones on the Missabe lines.

Uphill from the docks at Duluth runs this true Mallet locomotive (notice that front cylinders are larger) with its long drag of empty ore cars. Fortunate is the DM&IR that the loads move down this hill, not up.

process of getting at the desired material is somewhat like this:

Imagine a cake in a pan, with a heavy frosting on top; imagine also that you can't remove the cake from the pan and that you don't like frosting but you do like cake. Your procedure then is to scrape off the frosting with a spoon, lay it to one side and dig in after the cake. In open pit mining the undesired frosting is the so-called "over-burden" of dirt which may be anywhere from nothing to 75 feet or more in depth. But after the over-burden is removed with a long-boomed power shovel, mining ore is not much more difficult than digging a basement with a steam shovel.

Now we can return to the great pit at Hibbing, sometimes called the Grand Canyon of Minnesota, but officially designated as the Agnew, Mahoning, Hull-Rust, Burt-Day-Pool, Sellers, Webb, and Susquehanna open pit mine. As we stand at the edge of the pit, our eyes meet a truly impressive sight, for this man-made valley is over two miles long and a mile wide, and part of it is down 375 feet below the place where we are standing. From our point of vantage, standing at the end of North Second Avenue, the ground drops very sharply in front of us for several hundred feet, but the far sides of the valley are sloped gradually back in a series of terraces. Off in the distance, silhouetted against the horizon, are the great piles of surface dirt which have been

scraped off the tremendous body of ore. The ore itself, constituting the floor and sides of our artificial valley, is of varying hues. All of the colors are dull, but they range from black through brown, red, tan-yellow, and even some white.

Perhaps by now some gentleman in the background has said politely but with a certain amount of impatience, "The scenery may be all very well, but our interest is in trains." Step right up, brother, and view a panorama which will warm the heart of any railfan, for there are 75 miles of railroad interlaced around and across the big hole. Directly in front and far below us a fussy little switcher has brought two gray-painted open-vestibule passenger cars down the long slope from ground level, and as it comes to a stop miners pour out of this passenger train and are on their way to the second shift. Far off on the distant hillside a big eight-wheel switcher moves a short string of cars under the waiting boom of a long-armed electric shovel which, they tell us, takes 15 tons at a bite and loads a thousand tons of pay dirt in an hour. To our left another husky eight-wheeler labors slowly up the long incline with eight loaded cars. Here comes a big Diesel with a short string of empties and finds its way to another giant shovel. Off to our right is a succession of switchbacks which would make any narrow gauge railfan from the Rockies envious, for there is a ladder with six—no, seven—distinct rungs in plain view, zigzagging up the side of the distant valley, and we watch while a switcher goes back and up, forward and up some more, chuffing laboriously with five loaded cars.

Over to our extreme right (after we have walked around the corner to appreciate the deepness of the huge hole) is a series of regular 0-6-0 switch engines with the slanting-back tenders such as we have seen on our own railroad at home, climbing up and down a switchback ladder with seemingly impossible gradients, and just managing to move two carloads of ore at a time.

'Way down in the pit almost directly beneath our feet is a tiny crawling thing which on closer examination proves to be a standard gauge electric "mule" with an overhead trolley system, hauling a string of eight mine cars. This little train leaves the broad daylight and disappears into the tiny black mouth of a tunnel, and we are told that it goes merrily on its way to deliver its load to a hoist in a regular shaft mine.

Now let's look a little more closely at the cars being loaded with ore at a dozen different places in the valley. With the exception of the little mine cars which have played gopher and disappeared in their hole, we can see that they are of two kinds. Ore which can be sent directly to the docks at Duluth is loaded in short, heavily built steel hopper cars, cars only 24 feet long but with 50- or 70- or even 100-ton capacity. You may remember the old farmer who said, "With my big eggs it doesn't take very many to make a dozen." Likewise it

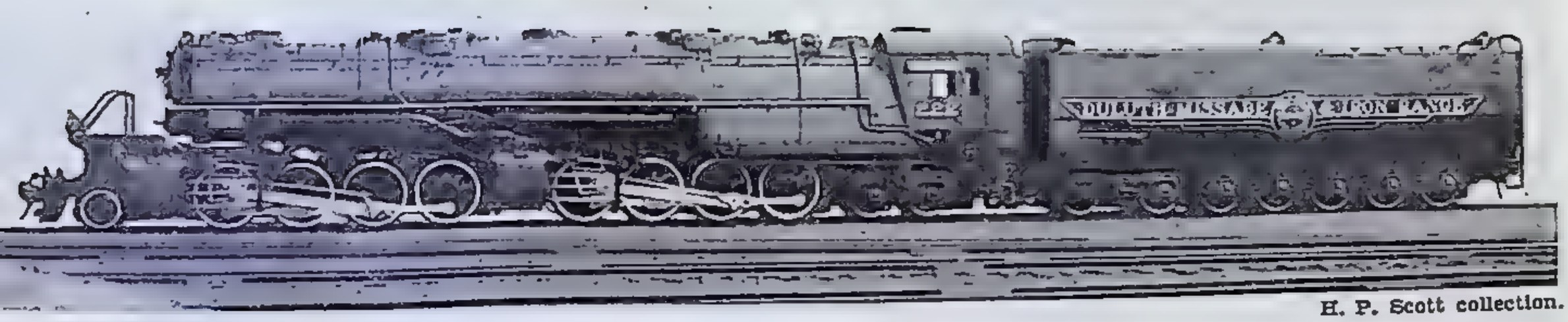
New power just delivered.

With 32 to 36 million tons of iron ore to deliver to the ships this year, DM&IR can well use the eight Class M-3 articulated locomotives recently delivered by Baldwin. Total engine and tender weight is 566 tons, tractive effort 140,000 pounds. Shipment was made by a roundabout route because of size. Tender capacity is 25,000 gallons, 26 tons. Engine and tender are roller-bearing equipped.

Roy W. Campbell collection.

Older classes of power.

Both these locomotives are of vintage prior to the consolidation of Duluth & Iron Range and Duluth, Missabe & Northern into the present DM&IR. The Pacific was built by Baldwin in 1913 for the D&IR and is now No. 1109 of the DM&IR. The Consolidation was originally built by the American Locomotive Company for the DM&N in 1906. Pacifics may seem strange on a road which does little passenger business, but DM&IR runs one round trip a day over most of its lines, and many an interesting one-day trip can be made out of Duluth, including a circle trip out via Two Harbors and back via the direct line.



H. P. Scott collection.

doesn't take very much iron ore to make 50 tons.

The other type of car is a low-side gondola which Pressed Steel Car Company calls an RT-1. It is arranged for side dumping by means of two air cylinders at each end which tilt the car body and open up the entire side of the car. These are used for ore which needs to be treated in one way or another—"beneficiated" is the official term—before shipping. Ore may be washed, crushed, roasted, screened, jigged, sintered, nodulized, or concentrated in a magnetic separator in order to remove useless material and to properly condition the useful part for the far-away blast furnaces. For instance, some ore may contain a good deal of free and useless silica which can be removed by washing; some ore contains 15 per cent water so that a drying process is worth while.

As the RT-1's wind up the hill off into the distance in their short eight-car drags and as the stubby ore cars are zigzagged toward the surface, we are about to leave the pit when a tiny spot of bright yellow attracts our attention as it slides swiftly down the long incline from the left. With our own adaptation of Superman's vision, we decide that it is a gasoline inspection car complete with roof and glass sides, probably looking for trouble. Yes, for it stops alongside an inactive shovel; but we can't see what is going on, for the men are not much bigger than ants; and we must be on our way to watch a Missabe drag pull out of town.

As we start back we notice that the pavement on North Second Avenue stops abruptly at the edge of the pit and the foliage which has been vaguely a part of the background now comes in focus and is a deserted park, with a lonely bandstand in the center of the long grass. This is North Hibbing, and the pit mine has gradually gnawed away at the edge of the city, necessarily destroying property before it. As a matter of fact, the local paper mentions a discussion between the Oliver Mining Company and the city fathers concerning purchase of the old City Hall which is in the path of the slowly widening pit. But don't worry too much, for South Hibbing is far enough away from the mine properties and is a busy and flourishing city.

WE GET to the edge of town just as a long string of short and husky ore cars is starting on its way. At the head is a big Santa Fe, Missabe's E-1. Our reference notes tell us that these sturdy 2-10-2's have 50" drivers and a tractive effort of 69,600 pounds, plus 11,230 in the booster for a total of nearly

Switcher and Mikado.

Switch engines do yoeman work in the iron mines as well as in the classification yards of DM&IR. The 0-8-0, one of 10, was built by American in 1910 and exerts 46,075 pounds tractive effort. The large-cab, small-driver Mikado is Baldwin, 1923. The 12 Mikado type locomotives are all very much like the 311 (now numbered 1311) and have 75,230 pounds tractive effort including tender booster, which was added since the builder's photo was taken.

Roy W. Campbell collection.

Aubin Studios.

Roy W. Campbell collection.

Short stubby cars.

The carloads of ore all look alike, but each may be different in chemical composition and must be switched at Proctor Yards (left).

81,000 pounds, which is quite a lot of "oomph." Right behind th big Santa Fe is an auxiliary tender which looks like a glorified tank car, has a capacity of 12,500 gallons and supports its own backup headlight, since engine and auxiliary are handled as a unit.

Now let's watch the cars of ore go by. Each car is piled high, for this is rush season and the equipment is well built to take the punishment of continued overloads. I'll count the cars while you notice that they vary somewhat in age and size and style, but that each of them is about half as long as an ordinary freight car. The train is 156 cars from tender to yellow crummy.

Docks at Two Harbors.

After trainloads of the correct ore mixtures have been made up at the classification yards the cars are again moved in long, heavy trains to the docks, where the ore is dumped into bins and thence into the holds of lake boats. The DM&IR comes downhill to the docks, and long trestles are built out from the hills to the high level of the bin tops. The ore is sluggish and must be prodded out of the cars. Every morning at 8:35 a DM&IR passenger train pulled by a neat, clean Pacific leaves Duluth station (bottom) toward west and north and another leaves at 9 o'clock for east and north.

Roy W. Campbell collection.

First Duluth & Iron Range train on display.

Part of the first iron ore train on the Duluth & Iron Range stands today as a disp'ay outside the station at Two Harbors, Minn. On July 30, 1884, when this Mogul made its maiden trip, the transportation of iron ore to Lake Superior by railroad was already an old, old story. The start was made at Marquette in 1857.

Twenty years ago it took 16 hours to pull a load from Hibbing to Duluth; now only five hours' time is required. But we will drive on down to the yards at Proctor and be there long before our big drag shows up.

The yards at Proctor, called the Proctor Mixing Bowl, are affected by the fact that ore from different mines or from different parts of the great Hibbing pit differs not only in hardness, in color, and in water content, but varies widely in the percentage of iron and the amount of other elements which it contains. For example, ore may vary from 40 to 60 per cent in iron content, will contain varying amounts of manganese and will run all the way from .01 to .5 per cent in phosphorous. The phosphorous content is especially important, because anything running .045 per cent or more is not good for Bessemer converters and must be restricted accordingly. Since it would be difficult for the iron makers to prepare a satisfactory blast furnace charge with varying grades of ore, care is taken first to determine the exact analysis of the product as it comes from the mines and second to deliver a standard and well mixed batch to the ore bottom waiting at the lake dock.

Before the loaded ore cars are assembled into a train, an ore grader has taken a sample from each batch of four or five cars and made a record of the car numbers which each sample represents. Then, while the long drag is rolling down toward the lake, the samples are analyzed to determine mineral content, and the grader decides how the various cars in the train should be combined to load a boat with, say, 10,000 tons of a uniform and definitely known consistency. When the train has pulled into the great yards at Proctor, the yard master and the switching crew have definite information as to how a 60- or 80-car train load should be mixed before it is taken down the hill to the docks.

Here is an example of the accuracy with which the ore grader can mix cargo in order to obtain certain mineral content. The first column shows typical percentages guaranteed by the mine for use by the blast furnaces. The second column shows actual variations found in 162 carloads of ore which made up a particular ship load, and the third column shows the actual content of the mixed cargo.

	Guarantee	Variety	Mixed Cargo
Iron	56.42	50-61	56.49
Phosphorous	.077	.05-.25	.087
Silica	8.75	3.5-19	8.05
Manganese	.95	.15-3	.95
Water	12.30	8-18.5	12.54

As we drive along the highway paralleling the north approach to the yard limits, here is another long train of ore loads waiting to be weighed at the little scale house. We find that the weighmaster at the scale house has a consist for the incoming train, received by tele-

phone typewriter from Hibbing, and he is about to weigh each car as it passes by. Weighing of the moving cars is done with the aid of an ingenious scale built by Fairbanks-Morse which carries on its platform a floating track section. Each ore car in turn is poised for a brief moment on the scale platform.

We move down the yard and watch the big switcher. Missabe Road calls it an S-6; it is one of a series built by Baldwin, numbers 90 to 93. It has 50" drivers, uses 245 pounds of steam and has a tractive power of 86,000 pounds, substantially more than most heavy freight engines. Total load on the drivers is 352,252 pounds, a load on each axle of over 17 tons. We are told that when the S-6's were brought into Proctor, the bridges on the way had to be carefully reinforced beforehand and that these super-goats are so heavy they are practically confined to the limits of the yard. The S-6 has a relatively small tender carrying 10,000 gallons of water and 14 tons of coal.

Now as we move to the south end of the yards, we find a train all made up and a big articulated coupling on to it for the remainder of the run. The Santa Fes which come down from Hibbing have to work all the way, but the grade is not over three-tenths of one per cent, which of course makes heavy tonnage possible. From Proctor to the docks at Duluth is less than seven miles, but Duluth is 602 feet above sea level and Proctor is over 1200 feet, which means a good stiff two per cent grade on a long slant down the side of the hill. The Mallet is a little job with 110,000 pounds of tractive effort plus another 12,500 when equipped with a booster, and it walks off backward with 80 loaded cars like nobody's business. As we watch the long line of ore "jimmies" wind out of sight around the curve, we notice that the Missabe runs left-handed. It seems that many long years ago the road hauled a lot of logs, and that the logs occasionally rolled off onto the right of way. Running left-handed, the engineer could see both his track and the other one, which was a valuable safety precaution.

WHILE our long 2-8-8-2 is making its careful way down along the hillside with 5000 tons of pay dirt and some more tons of cars, let's go on ahead and look at the dock.

The idea behind an ore dock is very simple: Build a structure which is long enough, and strong enough, and high enough so that a whole train of loaded cars can be run out on it to dump the ore into bins below the track. Then, when the next boat comes in, feed the ore by gravity through chutes down into the hold of the ship. This results in a very im-

Roy W. Campbell collection

pressive job of bridge building, for the two Missabe docks on St. Louis Bay at the west end of Duluth are 2304 feet long with a stout wooden trestle curving down from the hillside and with great steel and concrete piers which are over 56 feet wide and which stride on giant stilts more than 80 feet above the water. There are 768 bins or pockets below the high level of the docks, with a storage capacity of 208,800 gross tons. Six ore boats can load simultaneously at each dock, swallowing a hundred tons a minute, and it doesn't require much imagination to realize that this vast structure can handle a tremendous amount of tonnage. During the past Summer, big Mallets have taken as many as 2000 cars a day down the hill from Proctor, which counts up to better than 100,000 tons of load and will fill an impressive number of ships every 24 hours.

We can drive along the street under the high trestles which form the approach to the Missabe docks, but we can't get very close to the docks themselves. However, 20 miles north at Two Harbors we can park alongside the depot, for here the great dock is displayed conveniently before us across a narrow bay. As a husky Consolidation pushes a string of loads out along the high trestle, we can see workmen climbing up onto the cars, and a little motor-buggy moving along on its own track beside the big loads, dwarfed by the height and the distance. This little car, operated by a man called a "trapper," is equipped to open hopper doors at the bottom of each car so that the ore can slide down into the storage bins below. Workmen take long sticks and poke down into the material to encourage it to slide. (Our friend with the civil engineering background says the stuff has an "angle of repose" of only about 60 degrees.)

A long ore boat waits placidly far below, while a dozen streams of red rock pour noisily down long steel chutes into its hold. The ship is already riding low in the water.

BUT we can't look at boats any more, for all our attention is turned to a shiny black monster moving slowly out from the roundhouse at our right. This must be—yes, it is; nothing else could be that big—one of the new Yellowstones which were just delivered to the Missabe Road when navigation opened last April. Still shiny with new paint, white rims on all 16 drivers, and a flamboyant herald blazened across the whole side of the great tender, the M-3 is truly a "thing of beauty and a joy forever." It has a tractive force of 140,000 pounds and can wheel 180 loaded cars along the grades from Ely to Two Harbors.

The Duluth, Missabe & Iron Range Railroad is unique in several respects. Like its cars, the road is short and stubby—120 miles is its longest stem—and the total mileage is only 539. It is a single-purpose transportation system, for its passenger traffic is negligible and better than 95 per cent of its freight revenue comes from iron ore. It is prosperous in a day when few railroads are making money, although the time was (back in 1932) when no ore trains wound their way down to the docks, and a paltry two million tons of ore was hauled with mixed freight. Last year the Missabe delivered some 20 million tons to the docks, while this year national defense will bring the total up to between 32 and 36 million, with a gross revenue of about that many dollars and a very favorable operating ratio.

The DM&IR almost hibernates during the Winter, for about the time you begin to think about Christmas shopping, deep ice freezes in the St. Mary's River and the railroad hauls no more ore until April. However, we do not need to feel sorry for its employees, for an engineman can bring home $400 a month during the navigation season, and even the laborer on the docks can earn $50 a week. Some of the operating force moves down to the Chicago Outer Belt Line in the Winter; others find employment in Florida or the Southwest. Hundreds of men are used on deferred maintenance of roadbed and structures, and others are busy in the shops with heavy repairs.

This is big business: well planned, prosperous, and efficient; busy, friendly, and courteous. This is a specialized transportation system, skillfully designed and operated to do a tremendously big job and to do it well.

Proctor, Minn.

Heaviest traffic on the DM&IR funnels down to Lake Superior through Proctor, nine miles west of Duluth. At Proctor (roundhouse, left) are the great yards in which cars are classified according to the chemical content of the ore so as to make up uniform shiploads. Also at Proctor is the beginning of the grade down to lake level.

Empire State Express

George H. Daniels.

THE *Empire State Express* is 50 years old. It was October 26, 1891, when the train made its first trip, a trip that started it on the way to being a New York state institution and, aside from the *Twentieth Century*, the crack train of the New York Central. Next month a new *Empire State Express* will go into service, specially streamlined Hudson locomotives and two trains totaling 32 new Budd-built stainless steel passenger cars, a belated (as everything is by Defense) anniversary present.

Fifty years of service, 40,000 one-way trips between New York City and Buffalo, 17 million train-miles (without injury to a single passenger through train accident), and yet there was a time when it was a dream of transportation daring in the mind of a single man.

This man was George Henry Daniels. The *Empire State*

Seventeen million train-miles are credited to New York Central crack train.

Adrian Buyse, 228 Weldon St., Rochester, N. Y.

Empire State engineer.

O. D. Hopkins comes of a railroad family. At one time his father and five brothers worked for the Syracuse Division of the New York Central. He went into engine service in 1889, fired two years on the *Empire State Express* before his promotion to engineer in 1902, and finally, after 47 years of service, won the coveted right hand cab seat of No. 50 in 1936. He retired in 1940. 5417 is a recent Hudson.

Express no longer makes its mile-a-minute runs in the shadow of his name, but it made its first conceived run in his brain.

Daniels was one of the first "modern" railroaders. These men followed the railroad builders toward the turn of the century and they bent their efforts toward more speed and consolidation of service, and still more speed.

As general passenger agent and later as the first advertising manager of the New York Central, Daniels was the first great publicist and advertiser of railroads in America.

He gave the *Empire State Express*, the *Twentieth Century Limited* and the Red Caps their names. He publicized the famous engine "999," put the *Empire State Express* on a United States postage stamp and published for enduring fame Elbert Hubbard's "A Message to Garcia." These were acts of creation and did not die with the man.

In his youth Daniels worked on Mississippi steamboats, but his yearning for the dramatic and greater speed led him to desert the river and follow the iron horse to his destiny. Years later he became vice-chairman of the Central Traffic Association at Chicago, leaving that position to become general passenger agent for the New York Central on April 1, 1889.

Daniels' driving urge to enter upon high-speed, long-distance passenger transportation found collaboration with Vice-President H. Walter Webb. Between them they planned the *Empire State Express*. It was only reluctantly, however, that some of the road's operating officers consented to place the new train in service.

The train made its first run September 14, 1891, carrying a large group of newspapermen among its other passengers. It was made up of only five cars, one being the private car of Vice-President Webb, in which Daniels made the trip with timepiece in hand.

It was drawn by engine 870, piloted by Engineman Archie Buchanan, a brother of William Buchanan, superintendent of motive power. Altogether, the engine and cars weighed 178 tons, as compared with a Hudson locomotive hauling today's *Empire State Express* which weighs 327 tons alone.

The train made a record-breaking run from New York City to East Buffalo, 436 miles, in 7 hours 6 minutes, including stops, or an average time of 61.40 miles an hour. This great achievement in modern transportation was turned into good advantage by promoter Daniels before the train went into regular

New York Central.

Fastest and finest for the *Empire State Express.*

For 50 years the fastest and finest locomotives of the New York Central have been assigned to the *Empire State Express.* Two generations ago every schoolboy knew the "999," the engine designed especially by William Buchanan, master locomotive builder of the NYC, to break the world's speed record. The "999" did more than break a record; she set one, and never before nor since has a single locomotive earned such fame. She stands (above) in front of Congress Hall, Syracuse, shortly before she was sent to World's Columbian Exposition in Chicago, 1893. The *Empire State Express* of the last 15 years (opposite page) has been powered by Hudson type engines, and in the first decade of the century it had swankly lined and polished balanced compound Atlantic locomotives like the 3000 (shown below at St. Louis Exposition).

Adrian Buyse.

service October 26. From the very beginning the *Empire State Express* was an assured success and Daniel's vision and acumen were more than justified.

For those times of high-collared dignity and reserve, Daniels lavished an unheard-of amount of advertising on this new train. He advertised its speed and convenience and popularized "the *Empire* Kitchen"—a method of serving food on small tables in the coaches for lack of a dining car. Passengers flocked to the train.

Two years later his next effort to attract renewed public attention to the *Empire State Express* resulted in the construction of engine "999."

Passenger traffic to Chicago gave great promise for 1893 because of the Columbian Exposition, a fair to outdo all previous fairs. All railroads made elaborate preparations for their participation in this event and the New York Central planned in advance to exhibit the fastest locomotive in the world—the "999." William Buchanan was instructed to build it in the Central shops at West Albany.

The supreme test for the "999" came on May 10, 1893, when, with Engineman Charles H. Hogan at the throttle, she picked up the *Empire State Express* at Syracuse on the last lap for Buffalo, 150 miles away.

Hogan was told to try for a record, and when he came to the 36 miles of straight track between Batavia and Buffalo he pulled "999's" throttle wide open and held it there. Stop watches confirmed that during the next memorable quarter of an hour one mile of the 36 had been covered at the rate of 112.5 miles per hour.

Thus was a world's record smashed. News of it was telegraphed around the world. The "999" was immediately withdrawn from active service and Daniels dramatically staged her at the fair in Chicago, where she became a leading attraction.

Daniels saw to it, moreover, that people did not have to go to the Chicago fair to see the "999" and the *Empire State Express*. By a master stroke of promotion he prevailed on the post office authorities in Washington to use the *Empire State Express* as the illustration for Transportation on the commemorative two-cent stamp issued in connection with the fair.

Many of the world's most distinguished men, including presidents of the United States, governors of New York State, and noted statesmen and dignitaries from abroad, have ridden the *Empire*, which throughout the years has enjoyed heavy patronage. The hours of sessions of the legislature, of the court of appeals, and of other public bodies at Albany have been influenced by the time of its arrival and departure. The people of the state feel that they have a proprietary interest in the *Empire* and rightfully look upon it as their own. The train did not, however, remain

Adrian Buyse.

No. 50 leaves yard.

It's 1:30 p. m., and on the dot No. 50 pulls out of Buffalo for New York City, the *Empire State Express*, archetype limited train, open-platform observation car and all. The view from the terminal tower well illustrates the extensive track and switchwork at the east end of the Buffalo station layout.
station layout. The modern station at Buffalo is one of the newer NYC structures.

strictly a New York State run, for in recent years its popularity justified extending the run to Cleveland and Detroit.

Like other institutions which have reached or exceeded their half-century mark, the *Empire State Express* has already outlived almost all men who participated in its creation. Of its first engine and train crews only three men, now retired and in their seventies, will see the new streamliners inaugurated.

They are Colonel Van Voorhees, who is 72 years old and lives at 34 Ashton Road, Yonkers; Daniel V. Fowler, of Albany, and Bert Rose, of Syracuse. They were the youngest members of the crews and all worked as brakemen when the *Empire State Express* made its first passenger run.

Mr. Van Voorhees remembers the old *Empire* as the fastest train he ever rode. He was not on duty when it established the world's record behind engine "999," but he was aboard once when it hit 110 miles per hour making up 30 minutes between Rochester and Buffalo. That was in the days when there were no division speed limits.

The running time between New York and Buffalo was actually more than one hour longer in the 1890's than today, which is eight hours, but once the train got rolling the engineman could decide his own safety speed.

"I suppose you could call the original *Empire State Express* the first streamlined train in existence, because it had the first enclosed vestibules and steps that folded up when the doors were closed," Mr. Van Voorhees recalls. "We operated the folding steps by long levers in the vestibules. Both steps and vestibules were amazing and advanced in those days.

" Another innovation on the original *Empire*," relates Mr. Van Voorhees, "was a method for taking up the slack between the cars, thus giving a smoother ride. Air-cushioned pistons pressed against each other on both sides of the couplers. To keep these at full pressure we operated hand pumps at the station stops. Today, of course, the tightlock couplers take the place of those pistons."

Mr. Van Voorhees entered service as a brakeman July 3, 1890, when he was 22 years old. He was the youngest man in the *Empire* crew when that train began its fast runs a year later.

For several years the *Empire* ran with only four cars—a smoker-buffet, two coaches and a chair car. This was a safety measure, because cars were far lighter in those days than now. Moreover, those locomotives had limited tractive power although they developed a high speed.

It was not until almost one year after its first passenger run that the *Empire State Express* began service in both directions between New York and Buffalo. Twenty years later Sundays were also included in the daily schedule.

The crew for the running of the first *Empire* was specially picked for ability and courtesy. All its men fulfilled their promising railroad

careers. In the case of Mr. Van Voorhees, he was promoted to conductor shortly afterward and to him fell the honor of bringing the first *Twentieth Century Limited* into New York City in 1902. In 1903 he returned to the *Empire State Express* as its conductor for the next 18 years. During this time he saw the famous express evolve from a four-car to a 12-car train because of demands of service.

In the many years he was in charge of the *Empire* he had as passengers, many of whom he came to know personally, 15 ex-governors and governors from Levi Morton to Herbert H. Lehman. The names of several of these executives will be given to cars in the new train, as all cars of the two new streamliners will be named after the most distinguished governors of New York State. This is the first time that cars in New York Central coach trains will be honored by special names.

The 32 cars will include tavern-lounge cars, parlor cars, dining cars, coaches and observation-lounge cars. Murals, depicting highlight scenes in the history of New York State, will feature the decorations, which will have a New York State theme throughout.

The new *Empire* will stop and start as a unit, the cars being equipped with twin cushion rubber draft gears and tightlock couplers. The cars will have extra wide non-frosting windows, reclining seats, soft but brilliant individual lights for each seat, large lounge and wash rooms at the end of each car, and will be air-conditioned for both Summer and Winter operation.

Some morning on or about December 1 the new *Empire State Express* will pull out of Grand Central on its daylight run up the Hudson and along the winding Mohawk to Buffalo, Cleveland, or Detroit. Not mentioned among the passengers will be the shade of George Henry Daniels, unseen timepiece in unseen hand. It will always be HIS *Empire State Express.*

Working timecard, '93.

Employees' timetables, with their wealth of detailed information in addition to that given in the ordinary public folders, have always held special intrigue for those who like to ride the rails with watch in hand. In style this April 1893 timetable looks much like the working timetables of today, and even in number of trains it is much the same, if we exclude the now copious suburban service. The time shown at each station does not mean that the train stops, but is a passing time for the guidance of the engine crew. The Hudson Division, with its many curves, is not a speedway, but notice the nearly mile-a-minute scheduling of No. 51. Mileage today is .68 mile shorter, owing to reduction in curvature.

LEAVE	DISTANCE	Trains Going North. HUDS							
		191 Hudson Local.	‡21 Special Mail.	101 Croton Local.	95 Albany Local.	81 Peeks-kill Local.	‡61 Syracuse Express.	51 Empire State Express.	1 Croto Local
		A. M.	A. M.	A. M.	A. M.	A. M.	A. M.	A. M.	A. M.
Grand Cent. Sta'n ...			4.35	5.55		6.45	7.30	8.30	8.3
125th St. Harlem ...	4.38		4.43	6.03		6.54	7.38	8.38	8.43
138th St. Mott Haven	4.95		4.45	6.05		6.56	7.40	8.40	8.45
Mott Haven Junc. ...	5.30		4.46	6.06		6.59	7.42	8.41	8.46
High Bridge	7.10		4.48	6.09		7.02	7.44	8.43	8.49
Morris Heights	8 03		4.50	6.12		7.04	7.46	8.44	8.
Kings Bridge	9.86		4.52	6.16		7.08	7.49	8.48	8.
Spuyten Duyvil ...	11.15		4.55	6.20		7.12	7.52	8.48	9
Riverdale	12.89		4.57	6.24		7.16	7.54	8.50	
Mt. St. Vincent	13.60		4.58	6.26		7.18	7.55	8.51	
Ludlow	14.41		4.59	6.28		7.20	7.56	8.52	
Yonkers	15.22		5.01	6.31		7.23	7.58	8.53	9.
Glenwood	16.06		5.03	6.33		7.25	8.00	8.54	9.13
Hastings	19.44		5.07	6.39		7.32	8.04	8.57	9.19
Dobbs Ferry	20.71		5.09	6.43		7.36	8.06	8.59	9.23
Irvington	22.71		5.12	6.48		7.42	8.09	9.01	9.28
Tarrytown	25.28		5.16	6.53		7.48	8.14	9.04	9.33
Scarborough	29.44		5.22	7.00		7.58	8.21	9.08	9.40
Sing Sing	30.90		5.24	7.04		8.02	8.24	9.10	9.44
Croton Landing ...	34.42		5.29	7.10		8.08	8.29	9.14	9.50
Oscawana	36.41		5.32			8.11	8.31	9.16	
Crugers	37.29		5.34			8.14	8.33	9.17	
Montrose	38.84		5.36			8.18	8.35	9.19	
Peekskill	41.29		5.40			8.25	8.41	9.22	
Highlands	46.10		5.47				8.48	9.28	
Garrison	49.86		5.53				8.55	9.32	
Cold Spring	52.56		5.57				9.02	9.34	
Storm King	54.61		6.00				9.06	9.36	
Dutchess Junction.	57.26		6.03				9.11	9.39	
Fishkill	58.98		6.05				9.16	9.41	
Low Point	62.52		6.09				9.22	9.44	
New Hamburgh ...	65.11		6.12				9.28	9.47	
Camelot	69.60		6.19				9.35	9.51	
Poughkeepsie, ar. ...							9.45		
Poughkeepsie, lv. ...	73.48		6.28		7.00		10.00	9.55*	
Hyde Park	79.25		6.37		7.10		10.10	10.03	
Staatsburgh	83.70		6.42		7.19		10.19	10.08	
Rhinecliff	89.08		6.49		7.30		10.29	10.14	
Barrytown	94.69		6.56		7.41		10.39	10.20	
Tivoli	99.01		7.01		7.50		10.47	10.25	
Germantown	104.56		7.07		8.00		10.56	10.31	
Linlithgo	108.30		7.12		8.07		11.02	10.35	
Catskill Station	110.17		7.15		8.11		11.05	10.38	
Hudson	114.45	6.45	7.23		8.22		11.15	10.43	
Stockport	118.70	6.55	7.29		8.31		11.23	10.47	
Coxsackie	121.89	7.01	7.33		8.37		11.29	10.50	
Stuyvesant	124.27	7.07	7.36		8.42		11.34	10.53	
Schodack	130.37	7.18	7.43		8.53		11.44	10.59	
Castleton	134.29	7.25	7.48		9.00		11.51	11.03	
East Albany	142.39	7.41	8.02		9.15		12.07	11.12	
Albany	142.88	7.45	8.05		9.20		12.10	11.15	
Troy	148.91						12.30		
		A. M.	A. M.	A. M.	A. M.	A. M.	P. M.	A. M.	A. M.

Empire State Express at the height of her glory.

The graceful, high-wheeled American Standard locomotives had been replaced by more powerful Atlantics in 1902 when this speed shot was taken, but the *Empire State Express* was still the train that broke the world's speed record, the most famous train in America. It was to be 25 or 30 years before it became just one of the great steel fleet, 40 years before it was streamlined and again widely publicized as something new and radically better in trains. The standard four-car equipment then included coaches and parlor car.

C. W. Fisher, courtesy Rochester Model Railroad Club collection.

The Traveling Salesman

★ Railroad glimpses from a thumbworn diary recording 12 years of covering the West by train.

By Victor H. White.

You've never heard of the Montana, Wyoming & Southern Railroad? You'll find it today in a Northern Pacific folder—20 miles long, Bridger to Belfry and Belfry to Bear Creek.

Late one bright Summer afternoon in 1923 I boarded at Bridger what was jokingly called a *Galloping Goose*, one of the earlier straight gasoline passenger cars and the most comfortable railroad coach I ever traveled in. I'm not poking any fun at the *Galloping Goose*. The back of it was rounded like the stern of a boat with a semi-circular leather seat. This rear part was curtained. In good weather they rolled up the curtain and you rode in the open air. Sitting in the extreme rear when the car got going at a pretty good clip, the springs moved you up and down fully a foot. The rougher the roadbed, the more fun you had.

Twenty minutes after leaving Bridger we were in Belfry, mighty near the Wyoming line—as near, in fact, as the Montana, Wyoming & Southern ever came to using the Wyoming end of its name. It went, and I suppose still goes, into Belfry on a three-cornered track, like a huge wye about a half mile long on each of the three sides. You headed into Belfry station, then backed a half mile to the main line, then ahead again eight miles to Bear Creek.

Returning from Bear Creek, you are supposed to enter Belfry on the other side of the wye, stop at the station, back onto the main track, and go ahead 12 miles into Bridger. But that was not the way it was done.

A little shed at Bear Creek protected the *Galloping Goose* at night and served as repair shop when necessary. There was a small wye to turn the car around.

The first gasoline cars were ornery. If you got an engineer that could keep one percolating, you didn't argue with that rare mechanic. You let him run the railroad.

The Montana, Wyoming & Southern had such a man. I met him once—a young, slender, smiling fellow whom everyone instinctively liked. I forget his name, which, perhaps, is lucky, because he might not enjoy my squealing on him as I'm going to do.

The chief, as they called him, didn't see any sense in turning the *Galloping Goose* around twice. He ran it straight ahead into the shed at Bear Creek every night. In the morning he backed it down to the little passenger station with a surprising disregard for the fine little wye that was made to turn things around.

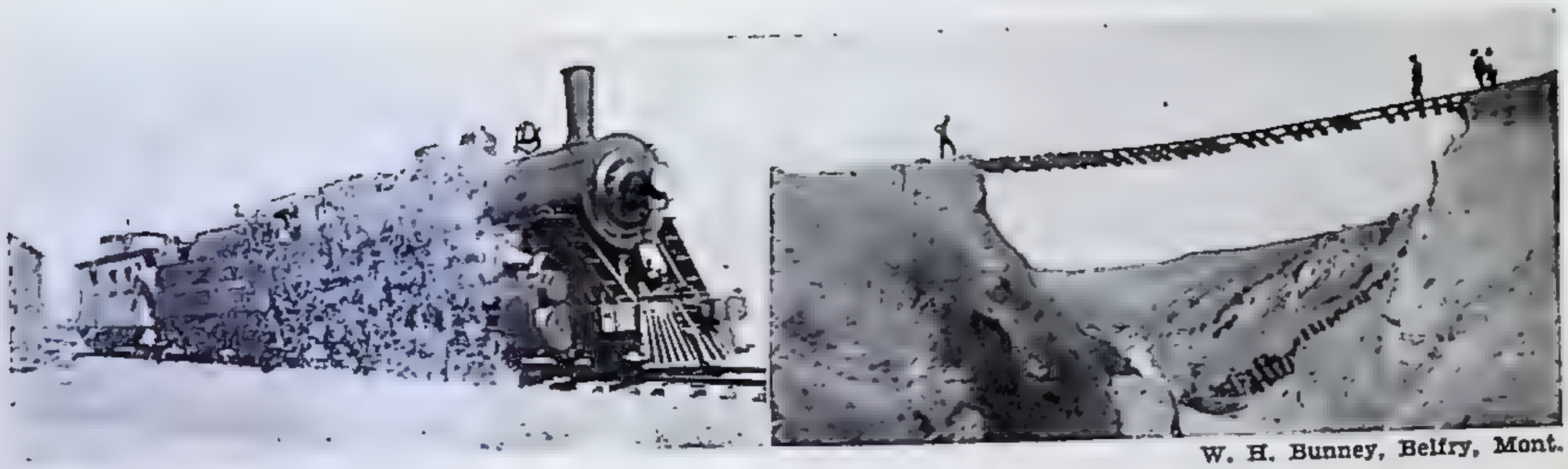
You won't believe this, maybe, but the line is all down grade from Bear Creek to Belfry, and the engineer could lean out the window of his one-car train and see what was behind him about as well as what was ahead. He backed the train every day the full eight miles to Belfry and thus stood at the Belfry station ready to go straight ahead into Bridger. What was the use of turning around twice? The chief said he had never been behind schedule one minute by doing it.

You say it's against rules. I mentioned that, too. The chief told me he had heard the same thing once or twice, and he grinned.

But that isn't all about this little railroad that I have such a friendly feeling for. Once in Belfry I decided suddenly to catch the 1 o'clock train for Bridger. I ran four blocks and found it already a block away, fast gathering speed. But the agent still stood on the platform. "Want to catch it?" he asked.

"I did want to," I admitted, a bit embarrassed.

Maybe you won't believe this either, but it happened. That agent jumped up and down on the platform, waved both hands and yelled at the top of his voice. A passenger on the open air veranda of the *Galloping Goose* saw him and yelled to someone farther ahead. Passenger passed the word forward to passenger until the news reached the engineer that someone was left behind.



W. H. Bunney, Belfry, Mont.

If any one connected with the Montana, Wyoming & Southern is listening, let me express my appreciation again. That train backed up and got me . . .

I met a shoe salesman in Butte who told me a story:

"Certain state laws," he said, "compel railroads to carry the weight of baggage allotted under a passenger's ticket on the same train he rides on himself.

"This happened in Illinois previous to 1920. I had five trunks of sample shoes and had to see one shoe dealer in a town half way to Chicago. I purchased a ticket 20 minutes before a special-fare, all-Pullman flyer was due. This train carried no baggage, nothing larger than a suitcase which could be put in a rack or between the seats. I needed two of my trunks badly. They were within the weight limit on my ticket and I had a copy of the state law in my pocket. I sprung it on the station agent as soon as he had sold me the ticket.

" 'Sorry,' he said. 'There's no baggage car on No. ——; there's no way we can take it.'

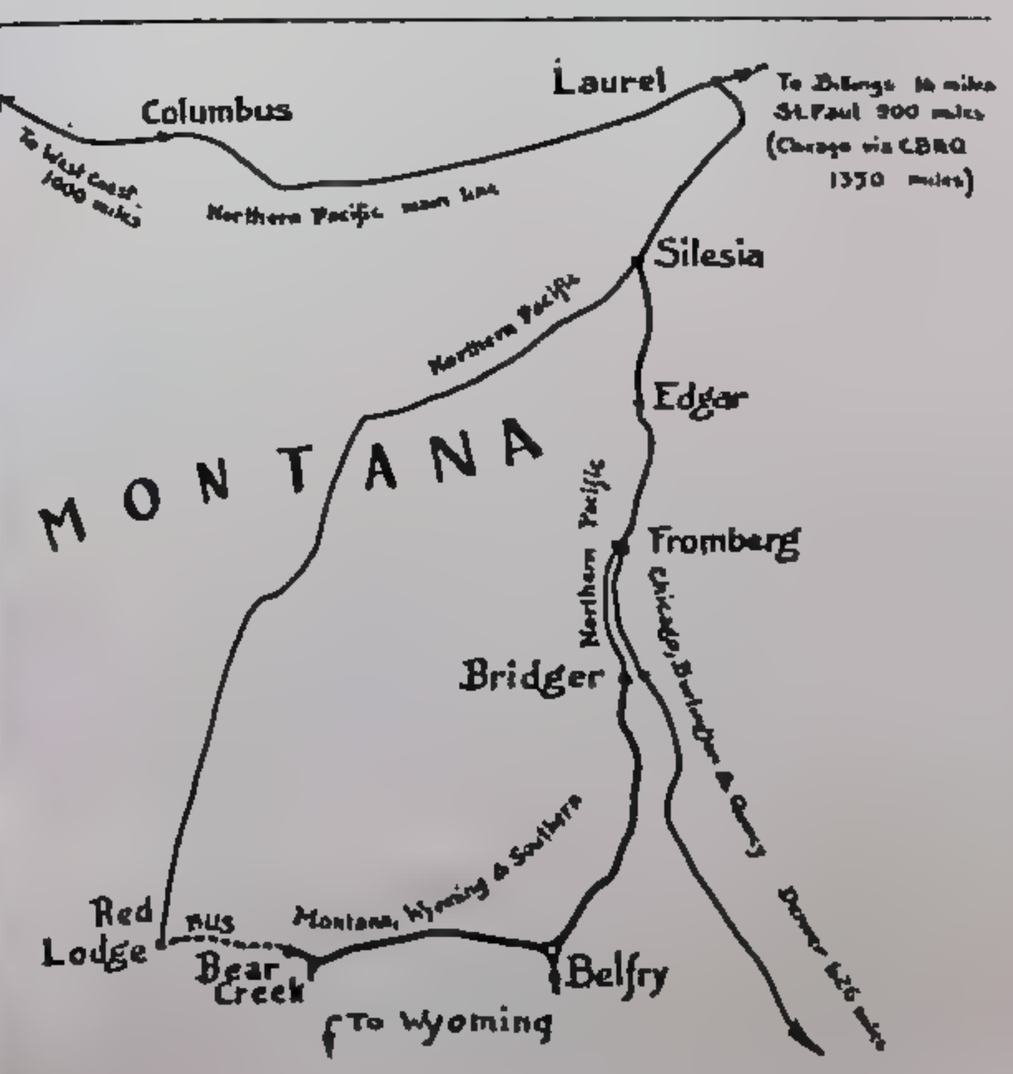
" 'You've got to take it!' I told him.

"He shook his head, but I could see he was worried. When the train came in, I refused to get on without my trunks. I defied them, good humoredly, but seriously enough, to leave me after selling a ticket for first available transportation and at a premium rate. The *Limited* lost five minutes while we chewed the rag.

Galloping Goose and where it went.

The Montana, Wyoming & Southern Railroad does not go to Wyoming, let alone points south of there. The 20-mile independent short line was constructed to serve the Bear Creek coal field in south-central Montana, and delivers trains of as much as 100 cars of coal to the Northern Pacific at Bridger. From Bridger to Belfry the MW&S follows the Clark Fork River in a fertile, well irrigated valley which has never known a crop failure and which ships more than 200 cars of sugar beets a year over the railroad. The early McKeen gasoline car below was called the *Galloping Goose* and, along with the Consolidation above, was in use on the road about 1924. The washout was near Bear Creek in 1923. Extension of the road was once planned.

W. H. Bunney.



The conductor looked at his watch, getting nervous. He was on the spot.

" 'Come on,' he said, 'let's get aboard.'

"The three of them—conductor, brakeman and station agent—heaved up my trunks of sample shoes, stood them on end in the vestibule of a Pullman. The train made up the 10 minutes lost and the rest of my checked, prepaid baggage came through later on proper schedule. I had the two trunks I needed, took a nice order in the little town and saved a day's time for my company." . . .

On the Union Pacific one time I stopped the *Portland Limited* on the sage-brushed plains of Eastern Oregon. I got on at Baker with a ticket for Arlington, which is half way down the Columbia River toward Portland. It was early September, end of the Summer season, and the train was loaded with school teachers and tourists finishing vacations. The *Limited,* heavy with three extra Pullmans, lost time climbing the Blue Mountain grade east of Pendleton and came into that Western city of roundup fame two hours late.

This was one time I knew too much about railroads. From Pendleton to Arlington is only 80 miles. A train can't make up two hours in a two-hour run. It just so happens, however, that the Columbia River runs down hill and the Union Pacific runs beside it on a strip of perfect roadbed if there ever was such a thing. We couldn't possibly reach Arlington before 3 p. m. . . . but we did, at 2:20 to be exact, and, because this was impossible, I never thought of getting off until I saw "Arlington" on the west end of a station we were just leaving.

The *Portland Limited* sped two or three miles while I was thinking what to do and before I found the Pullman conductor catching 10 winks with his feet stretched comfortably across two seats in an adjoining sleeper.

There was no use to wake him. Three cars ahead I found the train conductor, showed him my ticket stub. "You carried me past my station," I told him.

"Sorry," he said sympathetically. "Best I can do is take you to The Dalles and provide passage back on No. 2 this evening."

"No," I insisted, "that won't do. I must catch No. 2 at Arlington for Baker this evening, else I'll lose a day's time."

"That's the only thing we *can* do. We can't back this train up." He looked at me incredulously, as if I expected him to.

"You can stop and let me off," I suggested. By then we were five or six miles from Arlington. "I can bum a ride on the highway, see my man in Arlington and still make connections."

"But we'd be responsible for your safety," he objected.

I grinned. I was just a kid of 23 then and had a lot of confidence. "I know this country," I told him. "You're better off taking a chance on my safety than on my expenses for 24 hours. If you take me on I'll want a written statement so I can see that my company doesn't lose any money." I told him not to blame the Pullman conductor, that he likely was up most of the night considering the crowd on the train and needed a nap. "It was my own fault," I admitted. "All I want now is a little cooperation. Just let me off," I pleaded, "and don't worry about me."

That conductor, like every one I ever met, was a real fellow. He reached for the signal cord, walked back to where I had my suitcase, and spoke to the porter. The *Portland Limited* was slowing. They opened a vestibule door; the porter got off and put down the little square step very firmly amid the eastern Oregon sage brush. "Watchya step," he cautioned me, and reached back for my suitcase.

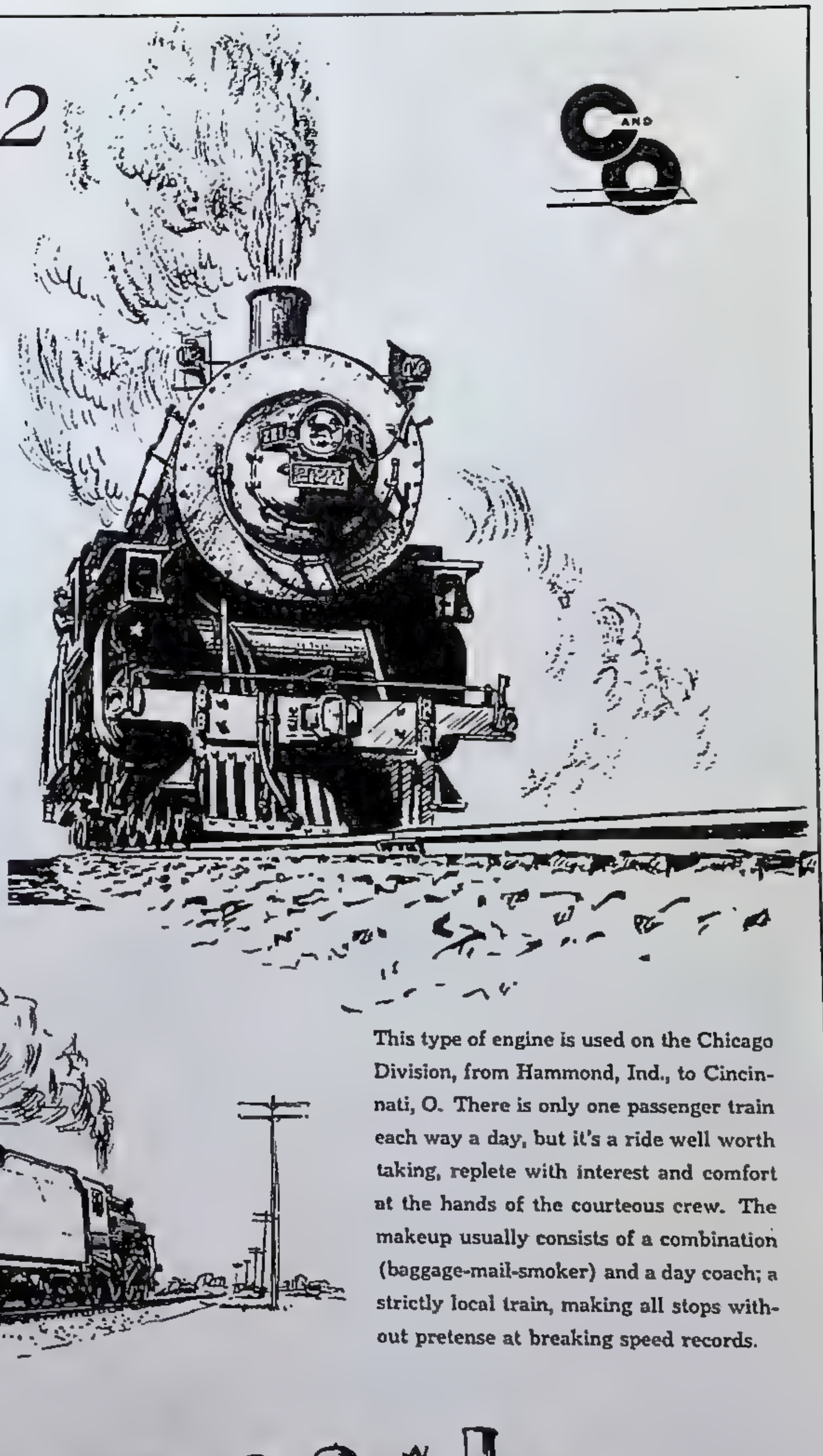
I departed from the *Limited* with as much pomp and ceremony as if this were Grand Central Station. "You take good care o' yuself, sah," the porter advised. He picked up his box, climbed back aboard, the big engine shot up its black plumes of smoke and the train moved off, leaving me in a vast lonely silence broken only by the gurgling of the mighty Columbia River that flowed beside me.

I likely was standing at that moment on soil that Lewis and Clark passed over in 1805.

But I was in no mood to appreciate historical drama. I ducked between the strands of a barbed-wire fence, walked about a hundred feet to the Columbia River Highway, stopped the first car, and 20 minutes later I was calling on the merchant I had come to see.

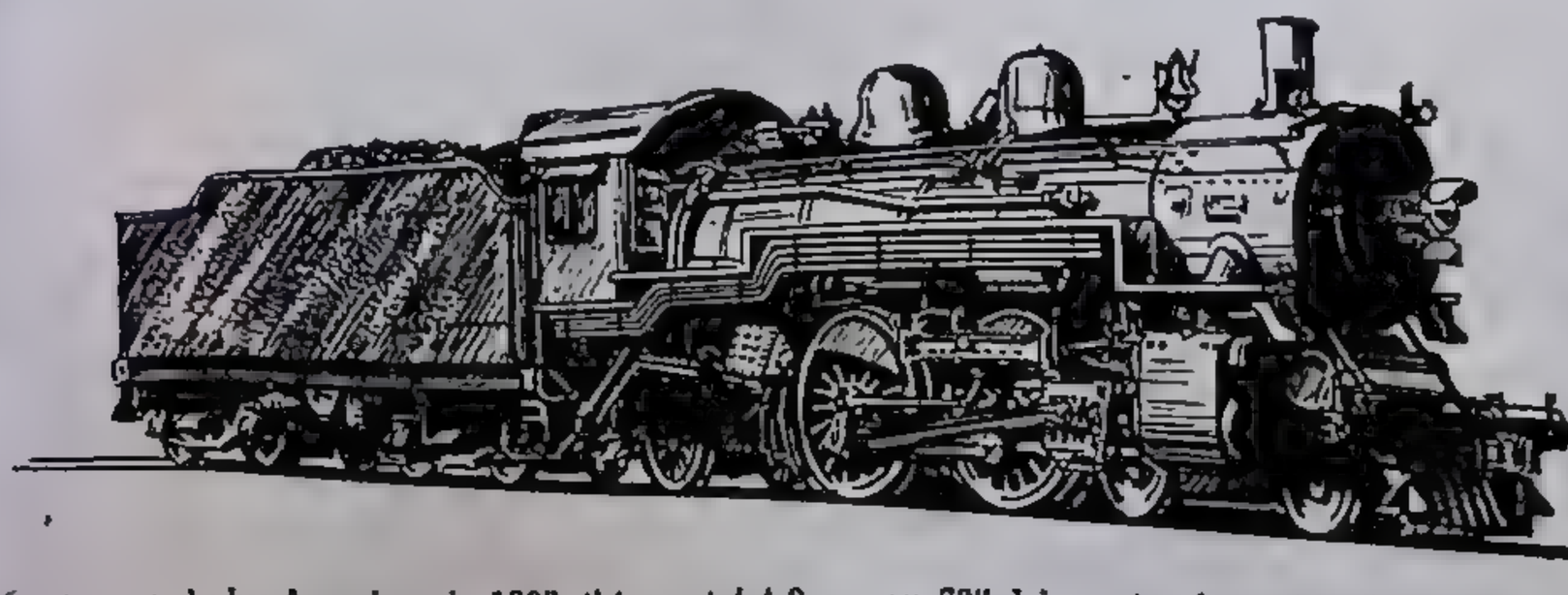
There are more pages in my diary. When you keep traveling on railroads, exciting things happen every day, but there's never any danger about the excitement. In 12 years of continuous travel, I was never in a wreck, never saw one, was never even close enough to hear any details of one. I am never more courteously treated, nor do I feel more comfortably relaxed, than when I'm on a train.

C&O 4-4-2



Chesapeake & Ohio's trim little Atlantic is a graceful piece of machinery, well proportioned throughout. Added to its natural pulchritude are the deft manipulations of the road's beautician, adding color and beauty spots to its finely chiseled features: a smoke box of gray, running boards edged in white to contrast with the boiler of black, and a single nickeled star on each of the valve heads. Like a modern grandmother, she hides her age (38) behind careful grooming, a compliment to C&O hostelers.

This type of engine is used on the Chicago Division, from Hammond, Ind., to Cincinnati, O. There is only one passenger train each way a day, but it's a ride well worth taking, replete with interest and comfort at the hands of the courteous crew. The makeup usually consists of a combination (baggage-mail-smoker) and a day coach; a strictly local train, making all stops without pretense at breaking speed records.



Built at Schenectady by American in 1903, this neat 4-4-2 is of Class A-16, weighing, with tender, 362,900 pounds. Boiler pressure is 185 pounds; the 22" x 26" cylinders work on 73" drivers to give a tractive power of 27,100 pounds. Engine and tender together measure 68'-3¼"; tender capacity is 15 tons of coal and 9000 gallons of water.

GIL REID

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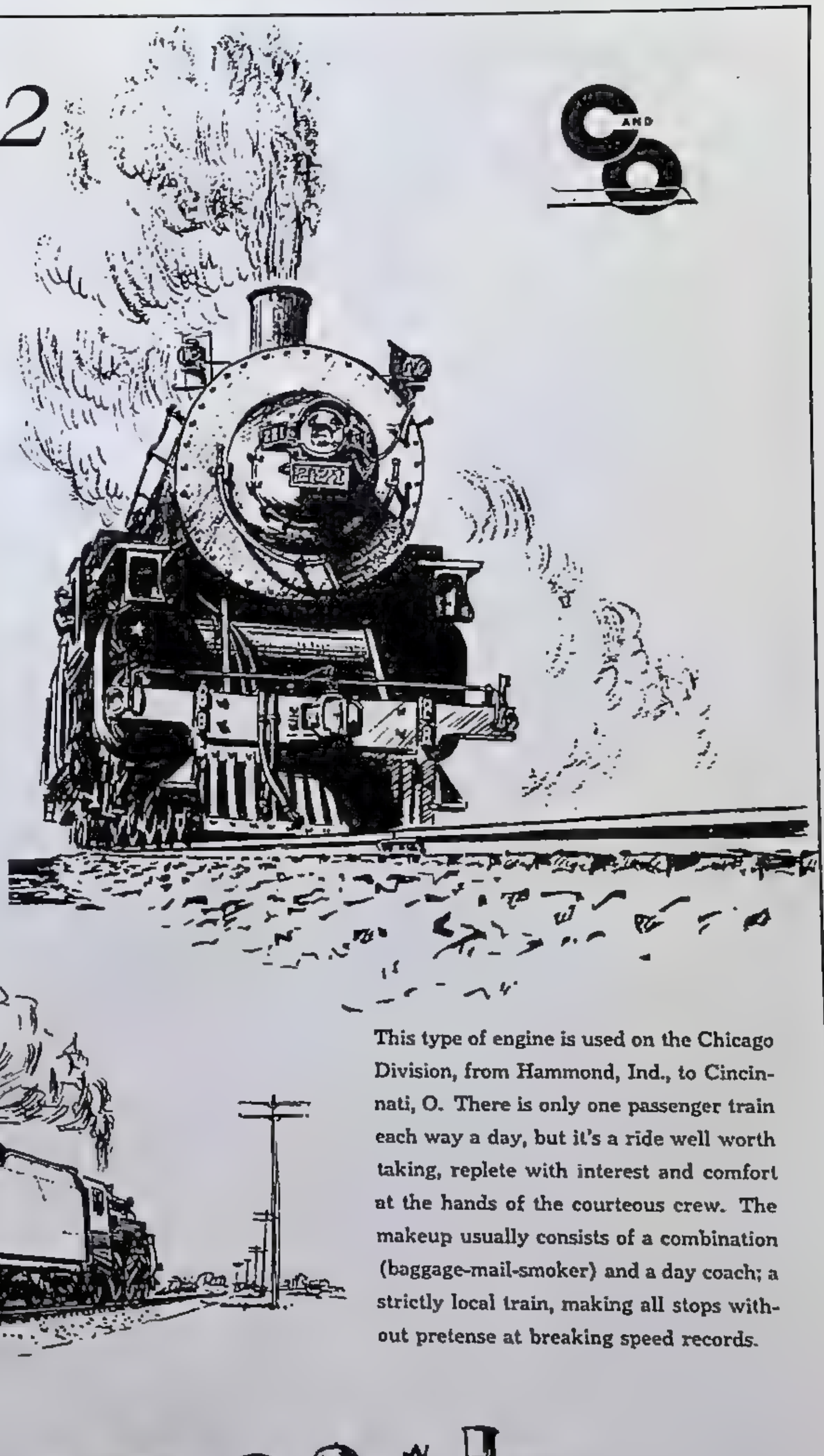

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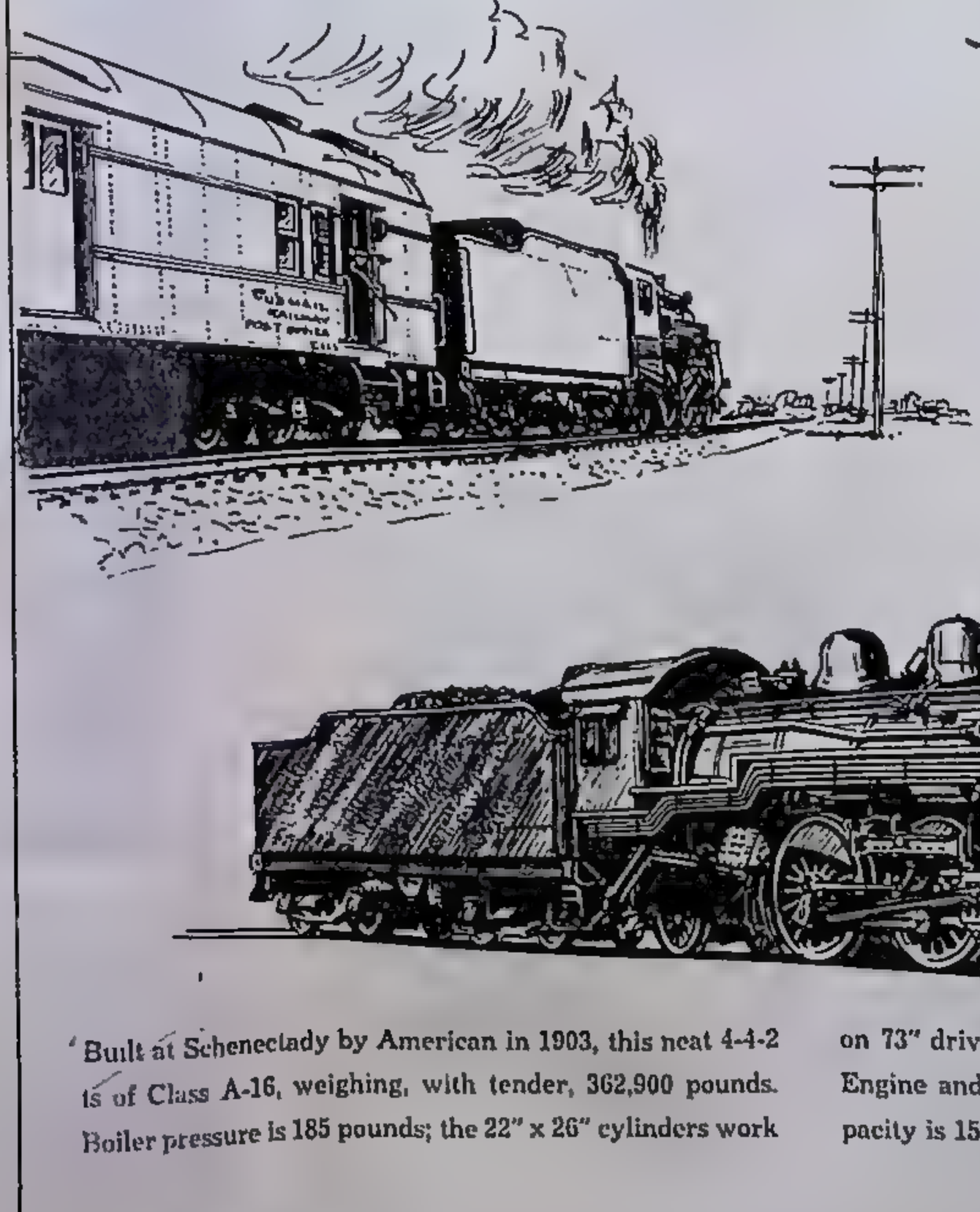

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GIL REID

Lucius Beebe.

Wheeling south from the Potomac.

Between two historic rivers runs the Richmond, Fredericksburg & Potomac, southward from Washington to the James River at Richmond. And over this 114-mile stretch of well maintained heavy double track runs a fleet of passenger trains not equaled by any railroad this size, all the trains from Northern railroads at Washington to South Atlantic Seaboard points on Atlantic Coast Line and Seaboard Air Line. Stop near the tracks some afternoon, as did Lucius Beebe, and watch them roll south: the *Miamian*, the *Southern States Special*, the *Vacationer*, the *Orange Blossom Special*, the *Florida Special* . . . and still they come, some with 300 class heavy Pacifics, some with the *Governor* class 4-8-4's.

Capital Cities Route

★ Richmond, Fredericksburg & Potomac is funnel for north and south Atlantic Seaboard traffic.

By Wiley Marion Bryan.

BRIDGE railroad between north and south Atlantic Coast is the Richmond, Fredericksburg & Potomac, 114 miles of well built, efficient double-track railroad connecting the Baltimore & Ohio and Pennsylvania at Washington, D. C., with the Atlantic Coast Line and Seaboard Air Line at Richmond, Va. Like a subway rush hour is the heavy Atlantic Seaboard traffic funneling through this important connecting link with as many as five passenger trains in one direction during a single hour.

Slightly more than 40 per cent of all RF&P revenue is passenger, reflecting the heavy Florida vacation traffic. The freight tonnage is about 70 per cent through traffic, to and from connecting roads. From a traffic standpoint the RF&P is really the northern end of both the ACL and the SAL. By a long standing agreement all revenue from the operation of through passenger trains between Richmond and Washington accrues to the RF&P, the trains being operated with RF&P crews and, except for the Diesels, with RF&P power. The company supplies its quota of coaches, mail, baggage, express, and dining cars to equalize mileage insofar as possible. Certain through line train expenses are prorated on mileage between train terminals.

At the time of double tracking in 1903 the railroad was straightened out and favorable maximum grades obtained. Main line track is laid with 130- or 131-pound rail on creosoted ties and crushed stone ballast. The line is fully equipped with two-speed automatic train control, cab signals, and color light wayside sig-

Southern railphoto fan.

For eight or ten years Wiley Marion Bryan of Durham, N. C., has been clicking railroad photos for a hobby, first with a Kodak Junior 620 with *f.* 6.3 lens and 1/100 shutter speed, then a Kodak 616, *f.* 5.6 and 1/200 shutter, and now with a Kodak Monitor 616 with *f.* 4.5 special lens and 1/400 shutter.

As in most other parts of the country, the taking of photographs is now prohibited in yards and shops down South, and most of the pictures for this article were taken before the restrictions were in effect. Bryan uses Agfa Super-Plenachrome film for stills and Superpan Press for action shots, with a K-2 yellow filter. His specialties are, of course, the nearby roads: Seaboard Air Line (on which he finds it hard to get action shots since most trains run at night), Atlantic Coast Line, Southern, and RF&P.

As with any other hobby, railroad photography has its good and bad points. Sometimes three or four hours' waiting may net a shot that will give years of satisfaction. Other times everything may be all set for a fine picture, and then along comes a freight or switcher to block out the view.

Bryan is traffic representative for the Durham Public Warehouses, but has completed student trips as a fireman on the Seaboard and is awaiting a call.

Wiley Marion Bryan, 406 E. Geer St., Durham, N. C.

Passengers and mail on the RF&P.

Forty-two per cent of the Richmond, Fredericksburg & Potomac revenue comes from passenger train operations, an unusually high ratio. This is because of the Winter trek of vacationists to Florida, the same seasonal rush which makes the Florida East Coast Railway a "rich road, poor road" [see April, 1941, TRAINS]. The *Florida Special* (left) makes a pretty picture as it heads north out of Richmond in the morning sun behind one of the *Governor* class 4-8-4's. At right is mail and express train No. 89 from Washington near the RF&P junction with Atlantic Coast Line in Richmond.

nals. The Richmond passenger station of the line is Broad Street, a building which also houses the offices of the line. Track layout is unique in that the line loops through the station and all north- and southbound trains travel the same direction, thus simplifying switching and express and baggage handling. At the Washington end trains use the Union Station [December, 1940, TRAINS] while freight is classified in the huge Potomac Yards [November, 1940, TRAINS].

Motive power is neat and clean, and the roster includes some of the finest 4-6-2's, 4-8-2's, 4-8-4's, and 0-6-0's. The road does not own any Diesel-electric streamliners, but does have two gas-electric trains and one Diesel switcher which operates at the Richmond Terminal, and it likewise maintains and operates all of the Seaboard and Atlantic Coast Line Diesel-electric trains between Richmond and Washington. The short run and heavy traffic make possible a high utilization of motive power.

Like many railroads, the RF&P does not operate any regular freight trains, but instead runs all freights as extras. Freights are listed in the working timetables, but their schedules are approximate and convey no timetable rights. These trains must not, however, be unnecessarily delayed. On the freights are the *General* class 4-8-4's and the 400 series Pacifics, as well as some of the 200 and 300 series Pacifics whenever necessary. The names of some of these freight trains are the *Richmond Merchandise, Coast Line Special, Seaboard Special, Potomac Merchandise,* and the *Blue Eagle.*

The Pacifics of the RF&P rank with the nation's best. The 301 to 312 are most used and very few of the 200 series are seen. However, Nos. 262 and 268 are now equipped with stokers and are frequently used on trains 14 and 15, deluxe coach trains between Richmond and Washington. It must not be overlooked that the RF&P maintains some fine coaches. Getting back to locomotives, the 301 to 312 series were built by Baldwin and Alco between 1918 and 1925. These engines have 26″ x 28″ cylinders, 200 pounds working steam pressure and 75″ drivers, weigh 448,400 pounds with tender, and have a tractive force of 42,800 pounds. The tonnage rating given to this series is 2000 northbound and 1450 southbound.

In 1927 Baldwin received an order for four heavy Pacifics which were numbered RF&P 325 to 328. These weigh 531,930 pounds with tender, have 27″ x 28″ cylinders, 75″ drivers, 225 pounds working pressure, exert 52,050 pounds tractive force and have a tonnage rating of 2300 northbound and 1800 southbound. These heavy Pacifics handled traffic fairly well, but in 1936 and 1937 business began to go on the uptrend and trains were heavier, thus necessitating larger and more powerful locomotives for both freight and passenger service.

Two types of locomotives of the 4-8-4 class

Wiley Marion Bryan.

were designated. The freight type is known as the *General* class, named after the great Virginian generals, and the passenger type is known as the *Governor* class, named for the colonial Virginia governors. The two types are very similar in appearance, both having 27″ x 30″ cylinders and 77″ drivers. The *General* class (551-555) weighs 842,940 pounds with tender, has a working pressure of 275 pounds and tonnage ratings of 3000 northbound and 2500 southbound (No. 555, 2700 tons) with a tractive power of 66,500 pounds. No. 555 is equipped with a booster estimated to exert 16,200 pounds tractive force. The *Governor* class (601-606) weighs 689,810 pounds with tender, exerts 62,800 pounds tractive force, has 260 pounds working pressure, and a tonnage rating northbound of 2900 and 2300 southbound. Six new *Governor* class engines are now on order from Baldwin and will have larger tenders so as to be available for either freight or passenger service. Delivery is expected next Spring.

For yard service the 0-6-0 type is employed for most of the service, but there are six 0-8-0's used at Potomac Yards, Va. At Broad Street Station in Richmond a Diesel-electric switcher is used to make up the passenger, mail and express trains, but during the rush periods several of the neat looking little 4-6-0's are placed in this service. These 4-6-0's are usually painted and cleaned up with the brass shining, and always look as if they just came out of the shops. Nos. 101 to 113 have 19″ x 26″ cylinders, 68″ drivers, 200 pounds working pressure, weigh 221,100 pounds with tender, and exert 23,460 pounds tractive force. Two Diesel switchers are now on order for use in the Acca train yard at Richmond.

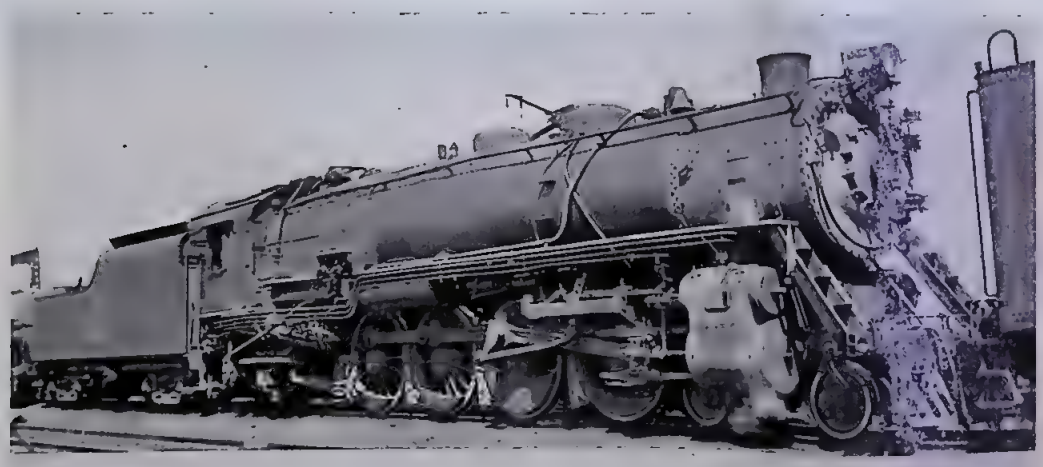
RF&P locomotives have no class numbers. Instead the series numbers are always used to classify them.

John B. Mordecai, traffic manager for the Richmond, Fredericksburg & Potomac Railroad, wrote a history of the company dated February 25, 1940. That day was the 106th anniversary of the incorporation of the company. The history states that it was the third railroad in Virginia to operate by steam. This can be appreciated when it is realized that only 4½ years earlier the first steam "locomo-

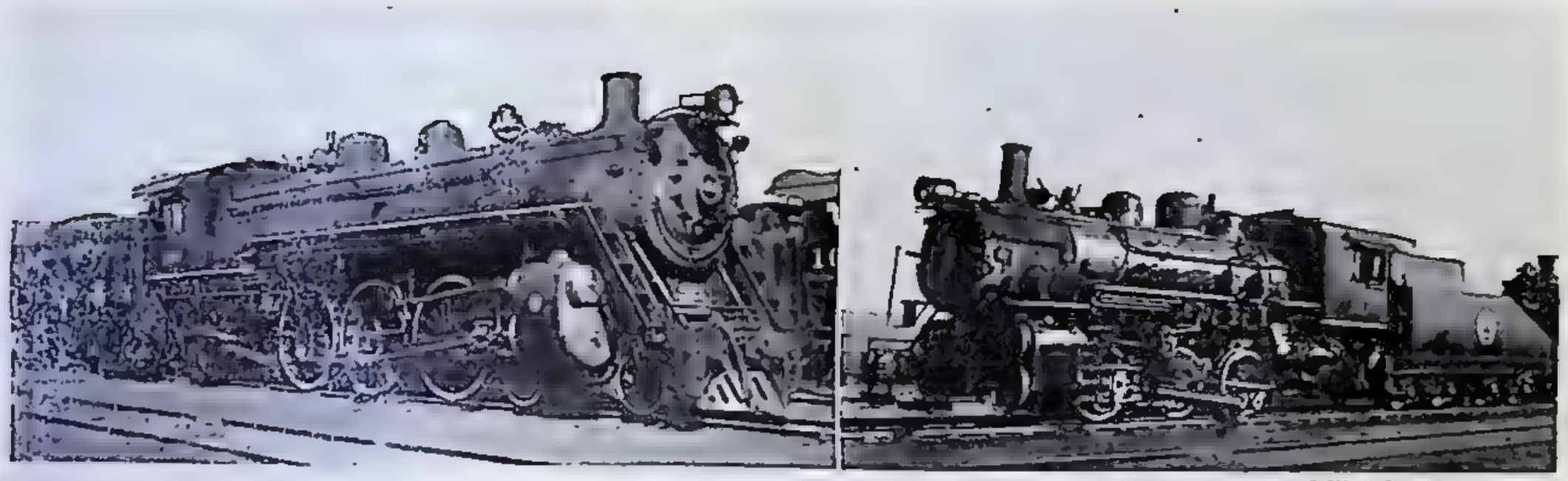
tive engine" was successfully demonstrated by George Stephenson on the Liverpool & Manchester Railway in England. The RF&P is the only American railroad which has operated through more than a century under its original name and without reorganization.

If you are interested in getting pictures of RF&P locomotives the best bet is Acca engine terminal in the northern section of Richmond. The best time of the day with relation to the matter of lighting is between 2 and 4 p. m. in the Winter months, and during the Summer from 2 to 5 or 6 p. m. While this time is the best for taking pictures, you will find that the most of the trains are in and out of Richmond in the early morning, and if it is action shots you desire, they constitute quite a problem. The main line out of Richmond runs north and south; thus in the mornings you get a shaded front view of the locomotive, which, even with the fastest panchromatic film, will appear slightly under-exposed. Most of these trains are northbound, as the early part of the morning is when the *Florida Specials, Orange Blossom Specials,* and other trains from Florida and the South are heading north for Washington and New York.

As for the few southbound trains, the lighting conditions are satisfactory for good action shots after 8 a. m., but of course the time of the year affects the lighting conditions. I might say here that it is necessary to get a written permit from some one of the officials of this company before going onto its property for the purpose of making pictures. Whereas the company is most courteous to all railfans, it is wise to have good credentials when applying for this permit. As a matter of fact, I have never been treated more courteously by any group of men anywhere. This is one road that truly believes in the motto "safety first and friendliness too."



Wiley Marion Bryan.



Wiley Marion Bryan.

Motive power of the Capital Cities Route.

The Mountain, or 4-8-2, type of locomotive is not as popular for new locomotive orders as it once was. The 4-8-4 type with greater horsepower capacity has taken its place, but the Mountain types already in service are powerful, comparatively modern engines, and see constant service. RF&P makes a good use of its 500 series (top, opposite page), built by American, and, like the 300 series Alco-built Pacifics (bottom, opposite page), assigns them to both fast freight and heavy passenger work. The older and lighter 200 series Pacifics include seven equipped with stokers (see No. 262, above, left). Notice the speed control apparatus on the right front truck wheel hub of all RF&P engines. Any road needs switchers (see 0-6-0 No. 47, top right) and any road, even if much younger than the venerable RF&P, has many older engines such as the 100 class Ten-Wheelers (below) which it keeps for light assignments. Pride of the road are the *Governor* class 4-8-4 passenger locomotives (bottom, this page). Six were built by Baldwin in 1938; six more are now on order.

Wiley Marion Bryan.

A Vermont Short Line

★ Montpelier & Wells River Railroad transports heavy granite loads from the Barre & Chelsea to the Boston & Maine.

By William Moedinger Jr.

UPHILL and downhill, over the pine-scented land of Vermont, stretches 42 miles of shining rail, track of the Montpelier & Wells River Railroad, related through Boston & Maine ownership to the Barre & Chelsea [September TRAINS]. Montpelier, the state capital, population about 8000, is near the foothills of the Green Mountains in the upper half of the state. Here begins the story of a short line railroad that has few parallels for the majestic beauty of the scenery along its meandering, climbing and dipping right of way.

An M&WR train leaving Montpelier travels for 22 miles in a northeasterly direction until it reaches Marshfield, where a comparatively sharp turn to the southeast sends it on the way to Wells River and Woodsville. Between terminals the M&WR gives service to nine on-line towns. Wells River, Vt., and Woodsville, N. H., straddling the Connecticut River with highway and railroad bridges between, are about 25 miles southeast of Montpelier as the crow flies. Here four important lines of the

William Moedinger Jr., 23 E. Vine St., Lancaster, Pa.

Boston & Maine meet. These facts stress the importance of the Montpelier & Wells River as a connecting link between two main railroads as well as between prominent towns.

Schedules are arranged on the M&WR so that two engines can handle all line-haul work, one for the Barre Branch weekday local, and one for the two main line round trips. Quite frequently, however, the morning and afternoon trips are handled by different engines.

BACK in 1849, when hordes of Americans were dashing to California in hopes of gaining wealth from the gold discovered there the year before, the good, solid Yankees in Vermont were building railroads as a foundation of their blossoming industrial empire. By December of the same year the Central Vermont Railroad opened its main line to Burlington, placing Montpelier on a direct route to Boston. Four years later the Boston, Concord & Montreal Railroad opened its line to Wells River, providing a through route to Boston for this Vermont community. In 1863 the Connecticut & Passumpsic River Railroad opened its line through Wells River, providing another route to Boston and a new route to Canada.

About the time the Civil War came to a close, the people began to see the need for a connecting railroad between Montpelier and Wells River. On November 11, 1867, the Montpelier & Wells River Railroad was incorporated. In 1870 the company was organized and a contract for $1,065,000 awarded for the construction of the railroad. In 1873 the road was opened for operation and on November 24 the first train operated between Montpelier and Wells River.

Also about the close of the Civil War, the town of Barre began to concern itself with the quarrying and manufacturing of granite; and although production did not reach a commercial stage for many years, the Montpelier & White River Railroad was opened between Montpelier and Barre in 1876 and immediately operated by the Central Vermont. The ensuing seven years saw granite production approach the commercial stage, and in 1883 the Barre Branch Railroad was organized to build a line between Montpelier and Barre in direct competition with the Central Vermont. The Montpelier & Wells River furnished the funds and when the line was opened in 1889 it was leased by the promoting company at a yearly rental of $4800. Thus, 52 years ago, the M&WR reached its present size of approximately 42 route miles.

The first few years of the M&WR's life were rather hectic and discouraging, for after the first year trustees took over the road. Then, through nearly all of 1876, receivers operated the railroad. Finally, in 1877, the original president, Daniel R. Sortwell, reorganized it, placing ownership in the hands of the original bondholders who, with the original officers, operated it as an independent railroad until March 18, 1911. At this time the Boston & Maine acquired control of the Vermont Valley Railroad, which already owned the Montpelier & Wells River. Today the Boston & Maine controls the M&WR in the same way, but in 1926 withdrew from active management, leaving this to local interests.

The granite industry has flourished in this section of Vermont and has contributed more than anything else to the Montpelier & Wells River Railroad revenues. And as the years rolled by the Central Vermont profited, because through her Barre Branch she was assured of a long haul on the main line to the granite-consuming centers in all parts of the country. The ever-growing Boston & Maine in a few years controlled all the railroads into Wells River, the M&WR's eastern terminus, so it was in order that M&WR and B&C should come under her wing, thus providing her with a long haul to the various granite markets. Boston & Maine domination placed the Montpelier & Wells River in a more favorable posi-

M&WR pastoral.

The afternoon eastbound mixed train assaults the four-mile one per cent grade from Montpelier to Fairmont. This train carries most of the tonnage freight to the Boston & Maine connection at Wells River, and usually returns with very little but the combination baggage and passenger car. The morning round trip is usually light eastbound and well loaded with freight westbound.

William Moedinger Jr.

Locomotive No. 20 with quite a train.

Montpelier & Wells River No. 1, leaving Woodsville at 9 a. m. with the interchange freight left during the night by the Boston & Maine and the combination coach tacked on the rear, is the heaviest train on the schedule. Here it is on a five-degree reverse curve bucking the 1½ per cent grade approaching Boltonville.

tion by not only insuring shippers of a through route to the granite markets but by providing the M&WR with a consistently longer haul to her B&M through-connection at Wells River.

To look at the Montpelier & Wells River Railroad's physical characteristics, we find the western end of the line hugs the Winooski River at an elevation of 533 feet, while the eastern end hugs the Wells River at an elevation of 462 feet. Between terminals the main line climbs to an elevation of 1430 feet above sea level, reaching the summit near milepost 20 from Montpelier on grades and around curves exceptionally well engineered for a short line railroad traversing such rugged terrain. Nineteen of the 38 miles are on curves, with not one exceeding 12 degrees, the majority between four and six degrees. In the ascent and descent of those 968 feet the steepest grade does not exceed 2.04 per cent, and this grade, just east of the Marshfield station, is less than 1000 feet long.

Between terminals, the main line around 195 curves and the short tangents between them is laid with some 22 miles of 75-pound rail, about 3 miles of 85-pound rail, the remaining 13 miles with 80-pound rail. Ballast is cinders, in most places deep enough to prevent the lush vegetation for which the state is famous from pushing through and marring an otherwise creditable track and roadway. The longest tangent is just about one mile in length; the remainder are scarcely long enough to accommodate the average mixed train, so that almost invariably the front and rear are on separate curves at the same time, quite frequently reverse curves.

The 3⅔-mile Barre Branch leaves the main line at Barre Transfer, crosses the Winooski River on the original covered wooden truss bridge, and, following a broad shallow valley, parallels the Vermont Central's branch nearly the whole way into Barre. While the branch is not level and has one grade of 2.37 per cent,

William Moedinger Jr.

Locomotive No. 20 with not quite such a train.

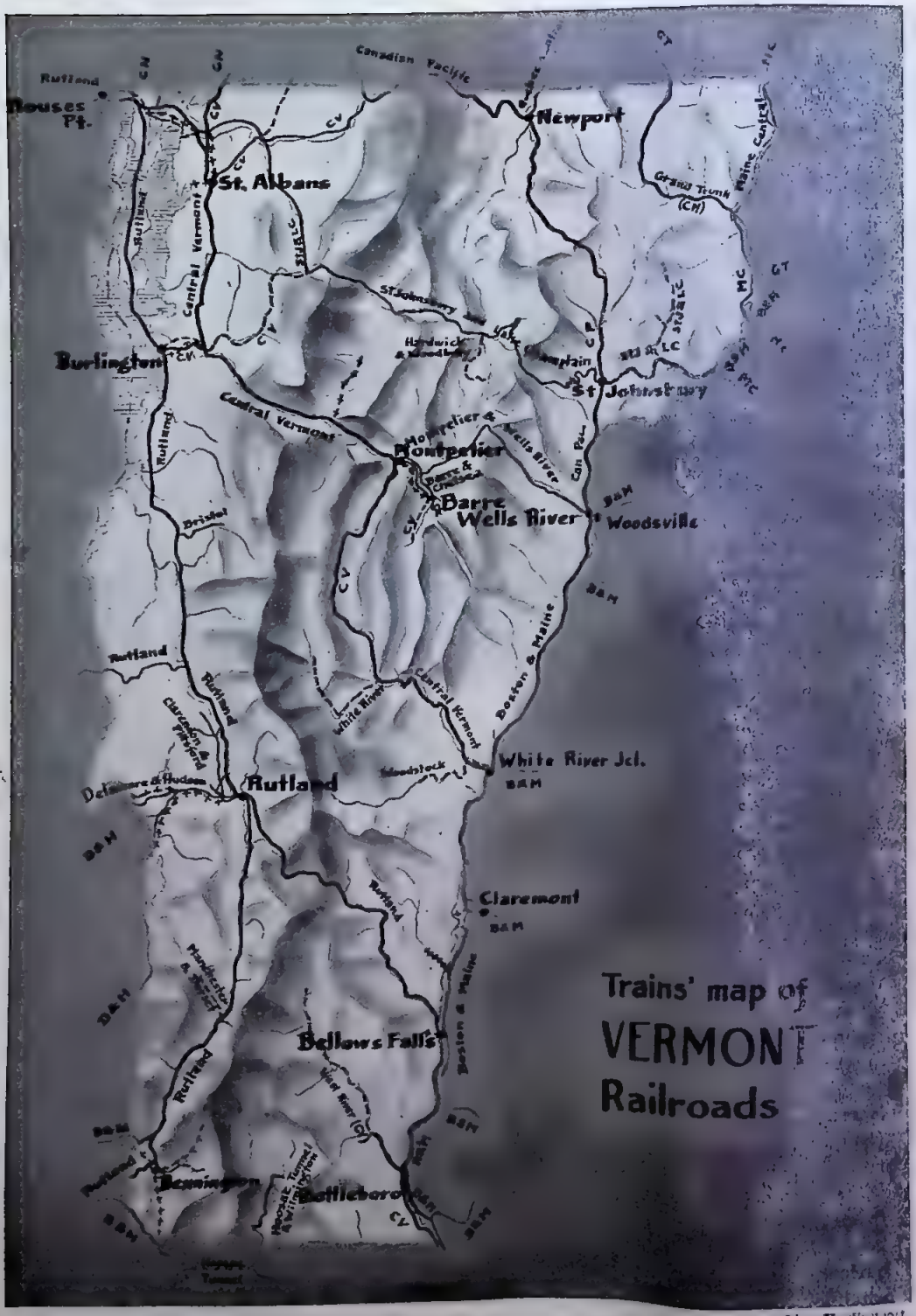
And here, just two hours earlier, is M&WR train No. 2 with only the ubiquitous combination coach, on its way over to Woodsville. This little train starts its day at 5:55 a. m., and if one wishes to get up that early and wait two hours at Woodsville for the B&M connection, he can get through to Boston at 3:20 p. m.

the grades are short and in both directions so that when Barre is reached only 35 feet in altitude is gained.

MONTPELIER around the noon hour is a beehive of activity. Mixed train No. 1 from Wells River arrives about 11:25 and spots the passenger-combine car in front of the station while one of the 0-6-0 yard goats breaks up the train. In a few minutes the local from Barre arrives with her work for the yard crew. Between this time and 1 p. m., train No. 4 must be made up with her consist of local cars and through cars for the Boston & Maine connection at Wells River. Just as the Barre & Chelsea schedules are arranged to coincide with the Montpelier & Wells River's Barre Branch local service, and just as the Barre Branch trains are operated so as to meet with the afternoon Wells River train on the main line, so the Montpelier & Wells River main line trains are more or less scheduled to coincide with Boston & Maine trains at Wells River.

Last year the M&W hauled 6619 passengers some 170,670 miles, collected a fraction over 43 cents from each one on the average, bringing total passenger revenues to $2852. Back in 1910 the road hauled 133,801 passengers, the greatest number of passengers it ever hauled in one year. This was in the days when there were 12 daily trains on the Barre Branch and when the main line was used as a connecting link in the route of the *White Mountains Express* between Burlington, Vt., and Fabyan, N. H.

Today the passenger traffic department finds little comfort from passenger revenues. The road does find, however, that the mail, milk, and express business helps to make up for declining passenger patronage. Last year express netted the road $1220; mail, $16,345; and milk $19,188. Daily the M&WR handles two milk tank cars to the Boston area: one



Heavy lines, through routes.
Light lines, other routes.

Crossties, electric lines.
Broken lines, abandoned.

M&WR motive power.

Locomotives owned by the Montpelier & Wells River Railroad (1941).

Number	Type	Driver Dia.	Steam Pressure, Pounds	Cylinders, D. and S.	Tractive Effort, Pounds	Builder	Year Built
7	0-6-0	51"	160	19" x 24"	23,100	Manch.	1908
10	0-6-0	51"	160	19" x 24"	23,100	Manch.	1909
11	0-6-0	51"	160	19" x 24"	23,100	Manch.	1909
19	2-8-0	61"	200	20" x 30"	33,400	Alco	1910
20	2-8-0	61"	200	20" x 30"	33,400	Alco	1910
21	2-8-0	61"	200	20" x 30"	33,400	Alco	1902

M&WR, from the opening of the road to date, has owned 28 locomotives, among which were two numbered 9, three numbered 10, two numbered 11, and two numbered 15. The original eight locomotives were numbered consecutively and also carried names.

from South Ryegate; the other from Plainfield.

Freight traffic netted the road $159,919 in 1940. In order of importance, freight tonnage was made up of the following: rough granite, finished granite, bituminous coal, and grain and grain products. A large part of the rough stone traffic was local, and was handled by the M&WR from the B&C interchange track in Barre to manufacturers in Barre, Montpelier, South Ryegate, and Groton. The traffic in finished stone was largely interchange traffic with the B&M at Wells River and originated in the four towns mentioned in connection with rough granite traffic.

Most Freight Originates in Barre.

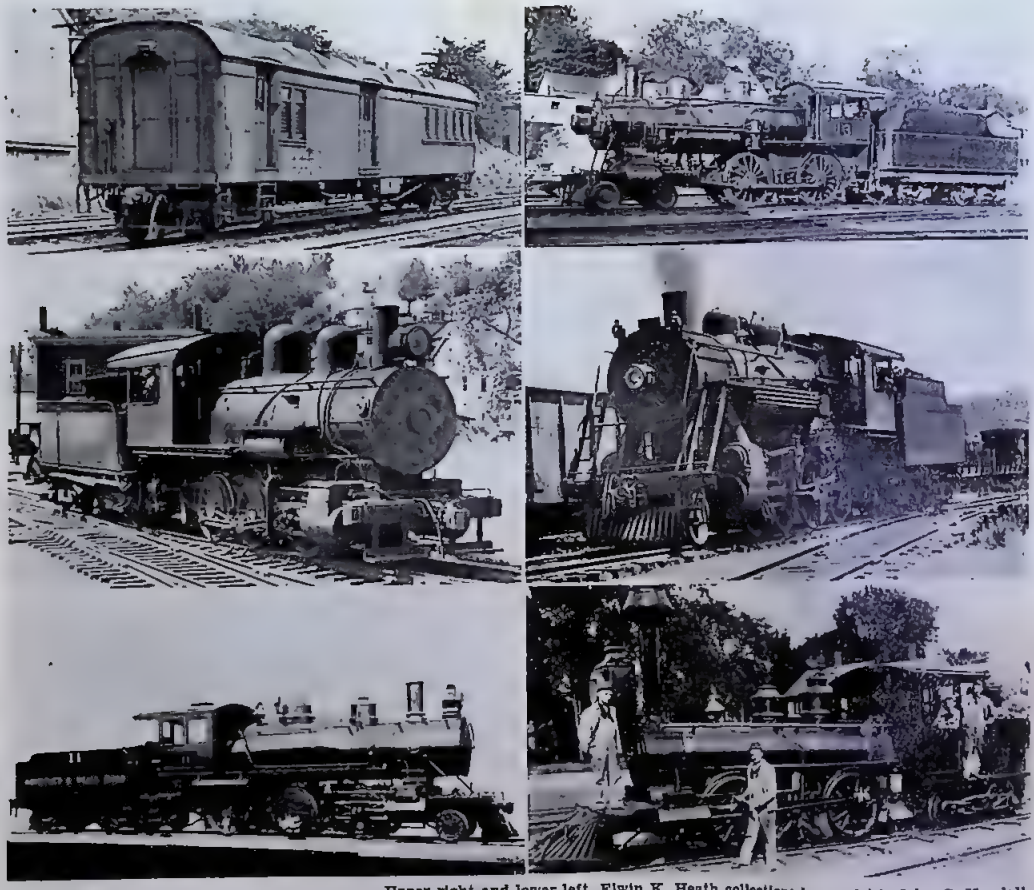
Barre City is the M&WR's number one station from the standpoint of revenues and tonnage, and most of the 1115 cars of granite hauled last year originated in Barre. In addition to the 31,761 tons of granite hauled last year, there was a substantial traffic in related commodities such as granite working tools and machinery and general operating supplies for the scores of granite cutting plants in Barre and Montpelier. Like any other railroad, the M&WR gleans traffic from the usual run of businesses and industries such as oil companies, coal and coke dealers, automotive firms, beverage dealers, lumber yards, and general merchandise dealers. The less than carload traffic amounts to 20.5 per cent of the total.

Before 1930 a great deal more shipments to consignees on foreign roads were carloads of finished granite. With the depression came hand-to-mouth buying by the monument retail dealers everywhere, and most shipments to individual monument dealers did not exceed 200 or 300 pounds. Truck operators surveyed the situation and started hauling these small shipments of granite to the eastern Pennsylvania territory which would net them a pay load both ways, leaving other territories for the railroads to handle. The trucks would haul the granite to such cities as Philadelphia, Reading, Lancaster, and York; after unloading they would drive to the hard coal district of Scranton and Wilkes-Barre, load with coal, and return to Vermont. By charging rates just below those of the railroads they managed to take most of the business away from the rails. Several years ago the I. C. C. established a new rail rate substantially below that of the truckers, but still the truckers managed to get a share of the tonnage.

H. C. Stoughton, general freight and passenger agent for the M&WR and the B&C, made a survey of traffic to these Pennsylvania cities to find out why more traffic had not returned to the rails. By ordinary l. c. l. handling, it required from a week to 10 days for a shipment of granite to reach eastern Pennsylvania cities from the manufacturing plants along the M&WR. Delivery by truck required but three or four days. Thus, under Stoughton's guidance, a new rail service was inaugurated.

Last January circulars went to every one of the hundreds of monument dealers in the eastern Pennsylvania area, announcing a new granite package service to be operated weekly. Every Friday at a given time two package cars regularly leave Barre, one for Philadelphia, the other for Reading. Delivery is made

Montpelier & Wells River rolling stock and scenes along the right of way.



Upper right and lower left, Elwin K. Heath collection; lower right, John S. Kendall, courtesy Athol R. Bell of Rock of Ages Corp.; others, William Moedinger Jr.

M&WR rents one passenger combine car from the St. Johnsbury & Lake Champlain Railroad, and here it stands in Montpelier yards. This is not the same combine car regularly used on the mixed trains, but can be substituted in case of necessity, as it has the same baggage, passenger, and R.P.O. facilities.

For branch line and yard service three 0-6-0 engines are used, all like the No. 11 (photo) and built to the same specifications by Manchester in 1908 and 1909.

Montpelier & Wells River has had two No. 11 engines. The shiny new Mogul (above) was the first No. 11, and was built for the railroad by Baldwin in 1909. It was later sold to the St. Johnsbury & Lake Champlain Railroad, and still later sold by SJ&LC to a junk yard. Present whereabouts is unknown.

The graceful American Standard type, No. 13, and its identical twin, No. 14, were built new for the M&WR by Manchester in 1912 and were scrapped in 1935-36. No. 13 used to do work commensurate with its trim lines, as evidenced by the photo on page 45 showing it with the *White Mountains Express*.

Present main line power is a trio of nearly identical Alco Consolidations, Nos. 19, 20, and 21, all of them one-time Boston & Maine engines just as are the three switch engines. No. 20 was built in 1910.

The tank engine, named *Arthur Tandy* and numbered 6, was part of the original M&WR motive power. For years it pulled suburban trains between Montpelier and Barre, was later sold to the White River Railroad and used for fill after the 1927 flood.

Lower left, collection of Elwin K. Heath, Barre, Vt.; all others, William Moedinger Jr.

Afternoon mixed train No. 4 always makes a stop at Plainfield to pick up a milk tank car for Boston.

The Montpelier yards lie beside the Winooski River almost in the shadow of the state capitol building. The Montpelier shops repair not only M&WR and Barre & Chelsea motive power, but that of the St. Johnsbury & Lake Champlain. In the yards stand much of the 25 units of rolling stock, including 17 flats, 2 tool cars, 1 snow plow, 1 derrick, 2 cabooses, 1 bridge department car, and the passenger combine. Two straight coaches were dismantled last Spring.

The old *White Mountains Express*, a Summer tourist train between Burlington, Vt., and Fabyan-Berlin, N. H., ran over the M&WR line with its Pullman parlor car and all. This was early in the century.

The Barre local of M&WR is shown (top) leaving the main line at Barre Transfer. The steel bridge and track in left background is the Central Vermont's Barre Branch. Track curving to right is main line of M&WR to the east. Engines always run backward to Barre because they can't be turned at that city. Track from here to Montpelier was formerly double tracked, which accounts for the extra track seen in the *White Mountains Express* photo.

Barre branches of M&WR and Central Vermont cross the Winooski River side by side, one on a modern steel bridge and the other on the old wooden covered bridge, one of the landmarks of the M&WR.

From a window of the passenger coach, train No. 1 looks like this as it enters Groton State Forest.

in Philadelphia and in Reading the following Monday morning. The cars are sealed at Barre and run directly through. At the Pennsylvania end the car is handled by the Reading Railroad. While the cars themselves are consigned only to two cities, the Reading Company's store-door delivery trucks distribute the granite to dealers in this entire area. Stoughton's innovation has accomplished three things: Granite traffic formerly moved by truck has returned to the rails; both the M&WR and the Boston & Maine have gained additional rail traffic from the Barre district; and damage claims have been reduced through the reduction in handling of the granite en route.

M&WR Once Destroyed by Flood.

While traffic problems, tonnage, and rates are interesting subjects, perhaps to most of us the trials and tribulations of railroad operation are more interesting and entertaining. In the Fall of 1927 disaster swept down upon the M&WR in the form of a flood. Several days of continued rain and wind filled the mountain streams to overflowing, one of the worst "linestorms," as the New Englanders call them, in the history of the state. When the fury of the storm had spent itself the men of the Montpelier & Wells River found their road not only under water at both ends, including the entire Montpelier & Barre yards, but 10 miles of track between Groton and Wells River was either completely gone or turned upside down. Three bridges were washed away, and in most places the roadbed had washed into the Wells River, leaving the track either hanging in the air or at the bottom of the river. Transportation facilities in Vermont were paralyzed.

The Central Vermont's main line, which skirts the edge of Montpelier, suffered even worse between White River Junction and St. Albans. To get this line open as quickly as possible it was necessary to undertake restoration not only from both ends but from some point in the middle. Restoration in the middle of the line could best be undertaken from Montpelier Junction, and the only rail route to Montpelier Junction was the M&WR from Wells River. To get to Montpelier Junction the Canadian National (Grand Trunk) sent crews and engines of the 700 and 800 series to Wells River via the Canadian Pacific's line. Here they started rebuilding the M&WR. In about two weeks Canadian National crews had rebuilt the M&WR right of way sufficiently to operate their reconstruction trains through to Montpelier Junction, where they commenced working north and south replacing bridges and fills in an effort to meet the reconstruction crews working from both ends. Thus the M&WR was the first road in the territory to be reopened.

The Montpelier & Wells River is worth a day of any man's time. The trip may be only two short hours, but the traveler who has made the trip will fancy himself again and again looking out of a passenger coach, the last car on a mixed train, as it winds over the rolling Vermont hills.

Why NP Class Z-5 Was Built

BACK of every locomotive design there is a story. Railroads don't make different engines just to have a variety of power, but only to meet specific needs.

Prior to the designing and building of the first Northern Pacific Class Z-5 in 1927 and 1928, a hundred-car, 4000-ton train would pull into Glendive, Mont., from the West and stop. It would have to stop, in spite of the fact that it was hauled by one of the NP's strongest Mikado type locomotives. The 31 miles from Glendive to Wibeaux offers a 747-foot rise with assorted sawtooth grades over which no ordinary engine could haul a hundred loaded cars. So the train would be broken in half, taken over the saw teeth to Mandan with *two* Mikados, and coupled up again to continue with one Mikado to St. Paul.

The 5000, first of her series, was tailor-made for this stretch in 1928, and her 11 Z-5 sisters—5001 to 5011—were bought in 1930. Instead of the time-taking shunting of trains at Glendive and Manda, all that happens now is a simple exchange of engines at these points. When the 5000 reaches the end of her run, she waits for another train to take back. Of the 12 Z-5 locomotives, 10 are usually in service while two are being overhauled.

The new Union Pacific 4-8-8-4's, largest locomotives in the world [see page 50] were similarly designed to fit a specific duty or a specific stretch of track.

Side by side on the New Haven.

Have you ever ridden 70 miles an hour in a New Haven coach, watching, mile after mile, the same people in another coach on parallel track? It can be done on the four-track section between New Haven and New York, but more likely your passenger train will overtake and pass a local or a freight, as the *Gulf Coast Limited* is doing in this photo. The *Limited* is pulled by one of the streamlined 4-6-6-4 electrics built by General Electric, and the 122-car freight by two of the much older 2-4-4-2 units. This photo was taken just east of Stamford, Conn., a section unusual for its overhead construction.

J. D. Bennett, 19 Highland Rd., Stamford, Conn

Letters

★ Interesting sidelights on railroads as readers observe them.

Modern Coach Makes Convert.

I HAVE just received a post card from a friend at a large university. He says, "Your enthusiasm for railroads was justified by the train in which I came here. . . ."

This fellow had cursed that railroad unmercifully in the past, and had put in time-and-two-thirds riding a bus rather than go by train.

Why the change? In the past, he had ridden only student specials; this time he had just an ordinary air-conditioned reclining-seat coach. Formerly, he had knowledge of only the worst equipment.

I suggest that, for advertising, the railroads might try to find just one modern coach for each large special party. I think damage could be prevented to such a car.

William C. Kessel.

92 E. Depew St., Buffalo, N. Y.

He Visited Colorado.

FOR the last year and a half I have been in the navy and am doing a tour of shore duty in the New York Navy Yard. Having been to sea in ships awakened my interest in railroading, which, I am afraid, had once become dulled through earning my living by railroad signaling.

When it came time for my leave this year I clutched a copy of TRAINS in my hand and set out for Denver. Following Linn Westcott's excellent map data, in two hectic weeks I completed the narrow gauge and standard gauge circle tours in Colorado, including the trip to Santa Fe. With two Leicas going full blast (one loaded with color), I came back with the narrow gauge roads imbedded in celluloid so that come what may I will always be able to ride them in my imagination.

I bought the September issue of TRAINS on a news stand, and there was an excellent article and a good map on the Santa Fe line. It hit just the right spot.

An old hand at cursing magazine editors for leaving out important data, I wish to extend my congratulations on your handling of articles on various railroads. The maps are excellent and are as vital in this kind of article as the pictures.

I wonder if among your readers there are not many who have traveled over foreign lines. Especially interesting are the mountain railroads in South and Central America, which are quite different from anything we have here. Possibly you could get some articles along those lines.

Charles S. Small.

256 W. 12th St., New York, N. Y.

[Mr. Small, a prominent member of the New York Society of Model Engineers prior to 1937, was instrumental in building the first working NX on any size railroad, for the ¼" scale Union Connecting Railroad. New York Central made the first installation on a real railroad at approximately the same time, Mr. Small admits, but he insists that Union Connecting installation was completed first. He worked for Union Switch & Signal Co. at the time.—*Ed.*]

Draftee Likes Train Service.

I AM a draftee from Detroit, Mich., and after six months away from home I left and made the trip from San Bernardino, Calif., in 45 hours to Detroit, via *El Capitan* (Santa Fe) and the *Mercury* (New York Central, Chicago to Detroit). Believe me, it was a wonderful trip in such a short time. The railroads have made great strides to gain back the good will of the nation's traveling public.

I returned last week, leaving Detroit at 1 p. m. Tuesday and arriving in San Bernardino at 5:58 a. m. Thursday.

George L. Beard, P. F. C.

78th Coast Artillery (AA), Hq. Btry., 1st Bn.
Camp Haan, Calif.

Birthday Wish.

I HAVE just finished reading October TRAINS. Never have I arm-chaired on a train between any two given points with more enjoyment than I did while reading "The Way Freight." Let any man, whether six or sixty, read it, absorb it, as I have done, and I'll wager that he sees every freight train with a new light. The story is the stuff of which railroad romances are woven.

As for the rest of the magazine: excellent.

believe that one of the most outstanding pictures of all time is the one on page 39 showing the eastbound main just past Cajon. That is saying a lot when one has to select it from the hundreds of remarkable pictures which have appeared in TRAINS during its first year.

With every good wish for your continued success,

Edward J. Whalen.

Medford, Mass.

[Thanks, Mr. Whalen. TRAINS starts its second year with a wealth of material on hand and hopes you'll feel the same way a year from now.—*Ed.*]

New Railroad Book

LOCOMOTIVES OF THE SOUTHERN PACIFIC COMPANY, by G. M. Best. 116 pages, 6" x 9", $2. Published by Railway and Locomotive Historical Society, Baker Library, Harvard Business School, Boston, Mass.

NEARLY 75 railroads were grouped together since 1870 to form the present 14,500-mile Southern Pacific System, so the compilation of a complete locomotive roster is an awesome task, a task which has been accomplished with completeness and accuracy by Mr. Best and published in its usual neat, compact style by the R&LH Society.

Statement of the Ownership, Management, Circulation, etc., required by the Acts of Congress of Aug. 24, 1912, and Mar. 3, 1933.

Of TRAINS, published monthly at Milwaukee, Wis., for Oct. 1, 1941.

State of Wisconsin, County of Milwaukee, ss.

Before me, a notary public in and for the state and county aforesaid, personally appeared A. C. Kalmbach, who, having been duly sworn according to law, deposes and says that he is the editor of TRAINS and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of Aug. 24, 1912, as amended by the Act of Mar. 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, Kalmbach Publishing Co., 1568 W. Pierce St., Milwaukee, Wis.; Editor, A. C. Kalmbach, 4924 W. Woodlawn Ct., Milwaukee, Wis.; Managing Editor, W. V. Anderson, R. 3, Box 238-D, Waukesha, Wis.; Business Manager, H. H. Kirtland, 1823 N. Oakland Ave., Milwaukee, Wis.

2. That the owner is: Kalmbach Publishing Co., 1568 W. Pierce St., Milwaukee, Wis.; William B. Calhoun, 2505 Brady St., Davenport, Ia.; Jane E. Chamberlain, St. Margaret's School, Waterbury, Conn.; Drayton Cochran, 157 E. 63rd St., New York, N. Y.; William D. Collett, 8030 Drexel Ave., Chicago, Ill.; Arthur E. Hughes, 605 Murdoch Rd., Baltimore, Md.; A. C. Kalmbach, 4924 W. Woodlawn Ct., Milwaukee, Wis.; B. G. Kalmbach, 4924 W. Woodlawn Ct., Milwaukee, Wis.; M. F. Kalmbach, 1140 N. 37th St., Milwaukee, Wis.; W. H. Nichols, 48 Woerd Ave., Waltham, Mass.; Carl A. Sorling, 1645 Ruth Pl., Springfield, Ill.; Francis S. Spon, Box 423, Brightwaters, N. Y.; W. E. Spon, Box 423, Brightwaters, N. Y.; and M. D. Thornburgh, 2108 Hoadley Ct., Westwood, Cincinnati, O.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

A. C. KALMBACH, Editor.

Sworn to and subscribed before me this 1st day of October, 1941.

A. C. MALUEG.
Notary Public, Milwaukee County, Wis.
(My commission expires May 23, 1943.)

YOU CAN HAVE THE RAILROADS AT YOUR FINGERTIPS

All important railroad routes are easily followed on this map, and the three-dimensional relief makes it easy to see what determined the routing, how mountains are crossed and river valleys followed. It's almost as much fun to follow your favorite trains on this map as it is to actually ride them!

★ What formerly was only an appeal to the imagination is now made a reality by this out-of-the-ordinary map. It shows at a glance how our country grew; how rivers, the easiest and earliest means of travel, decided the flow of population inland; how rugged mountains stopped population's spread; how terrain in the early days presented difficult transportation problems, shaped the distribution areas which still exist today, and why certain sections were so important to the future development of our original thirteen states.

★ The Professional and Business Man will find in this map, the missing link, the portrayal of the third dimension, HEIGHT, which opens new realms of comprehension and interest.

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★ This unique map is the creation of Theo. W. Ohman, whose work has been acclaimed by leaders of industries, educators, and other renowned Map-Makers. He has spent many years in the development of an original process for making fine detail relief maps (actually raised), and later, through his own method, created this lithographed reproduction which appears to be actually raised. The Ohman family have been map-makers for many generations.

Map is 36" x 23", scale 1" to 85 miles. Key to the map is on reverse side, and each copy is complete with metal strips for hanging.
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The Month

★ How many idle tank cars? Pelley and Ickes disagree.

★ What part have the railroads played in the much talked-about Eastern oil shortage? Before the war, crude oil to Eastern refineries moved by tank steamer rather than by rail. Now the steamers are diverted to other uses and the railroads are being blamed for supposed inability to carry a sudden load. While Secretary Ickes and President Pelley of the A. A. R. spar about whether there are 5000 or 20,000 idle tank cars, the general public wonders why there should be any idle tank cars at all if there is really an oil shortage. Why has the ability of the railroads to carry the complete oil load remained a matter for theoretical argument for months instead of being put immediately to a practical test? The answer seems to be in a slightly increased cost to the oil companies of moving crude oil by rail, even though at present the prices of oil are based upon railroad rates regardless of whether oil moves by water, pipe line, or tank car. Meanwhile small quantities of oil have started to move east by train.

★ Long interurban lines seem gradually to be disappearing while at the same time metropolitan commutation business flourishes. [See "The Month," October TRAINS.] The Pacific Electric, world's largest electric interurban system, has applied for permission to abandon passenger service on its 58-mile Los Angeles-San Bernardino line. The suburban service between Los Angeles and Covina, 22 miles, would be retained.

★ The largest locomotives in the world (this distinction first discovered and reported by TRAINS, April 1941) have just been delivered to Union Pacific: 20 4-8-8-4 type articulateds built by American Locomotive Company. They will be used to haul maximum-length freight trains over the Wasatch Mountains between Green River, Wyo., and Ogden, Utah, where the ruling grade is 1.14 per cent. Maximum speed is 80 miles per hour and maximum horse power is developed at the speed of 70 miles per hour. The locomotive chassis is especially designed for smooth action on curves as well as steadiness on straight track, and special attention has been given to the equalizing and spring rigging so that the exceptionally long locomotives can traverse vertical curves without undue shifting of the weight from one portion of the wheel base to another.

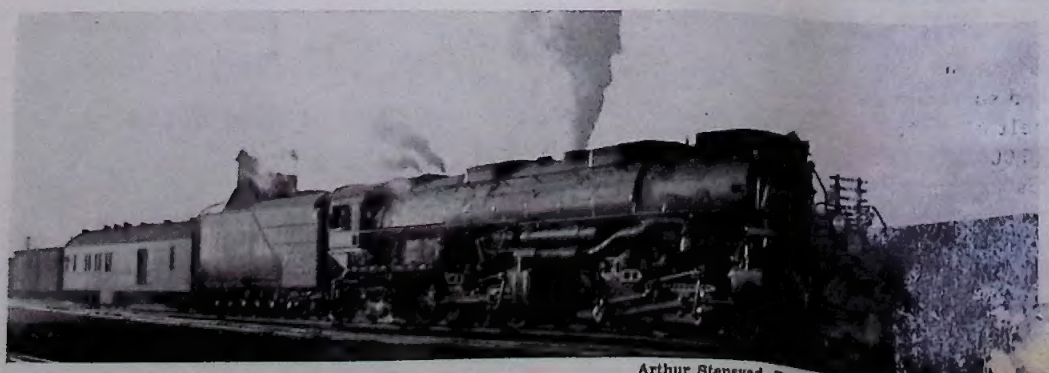
★ The change from daylight saving back to a standard time on September 28 was as usual an occasion for wholesale revision of railroad passenger service. Most of the large Eastern roads shortened or otherwise improved their schedules. The Pennsylvania added a new 17-hour Chicago to New York train, *The Pennsylvanian*. The New York, Susquehanna & Western (which a little over a year ago modernized its commutation service by providing bus connections across the Hudson River to New York in place of ferry service) has added several new runs.

★ Favorite railroad of many an Eastern railfan was the two-foot gauge Bridgton & Harrison in Maine. Abandonment has threatened the B&H for more than a year. Recently attempts were made [see "Railfans' Utopia," April TRAINS] to place ownership of the line in the hands of a group of railfans to assure its continuance. The plan fell through and on September 12 the last train traveled between Bridgton and Harrison.

★ Missouri Pacific-Texas & Pacific train ferries at New Orleans will be discontinued late this year when trains of the two railroads will commence using the new Public Belt bridge across the Mississippi. Terminal facilities on both east and west banks of the river must be revised. Two car ferries, the older one built in 1863 as the U. S. ironclad monitor *Chickasaw* of the Civil War, will be retired.

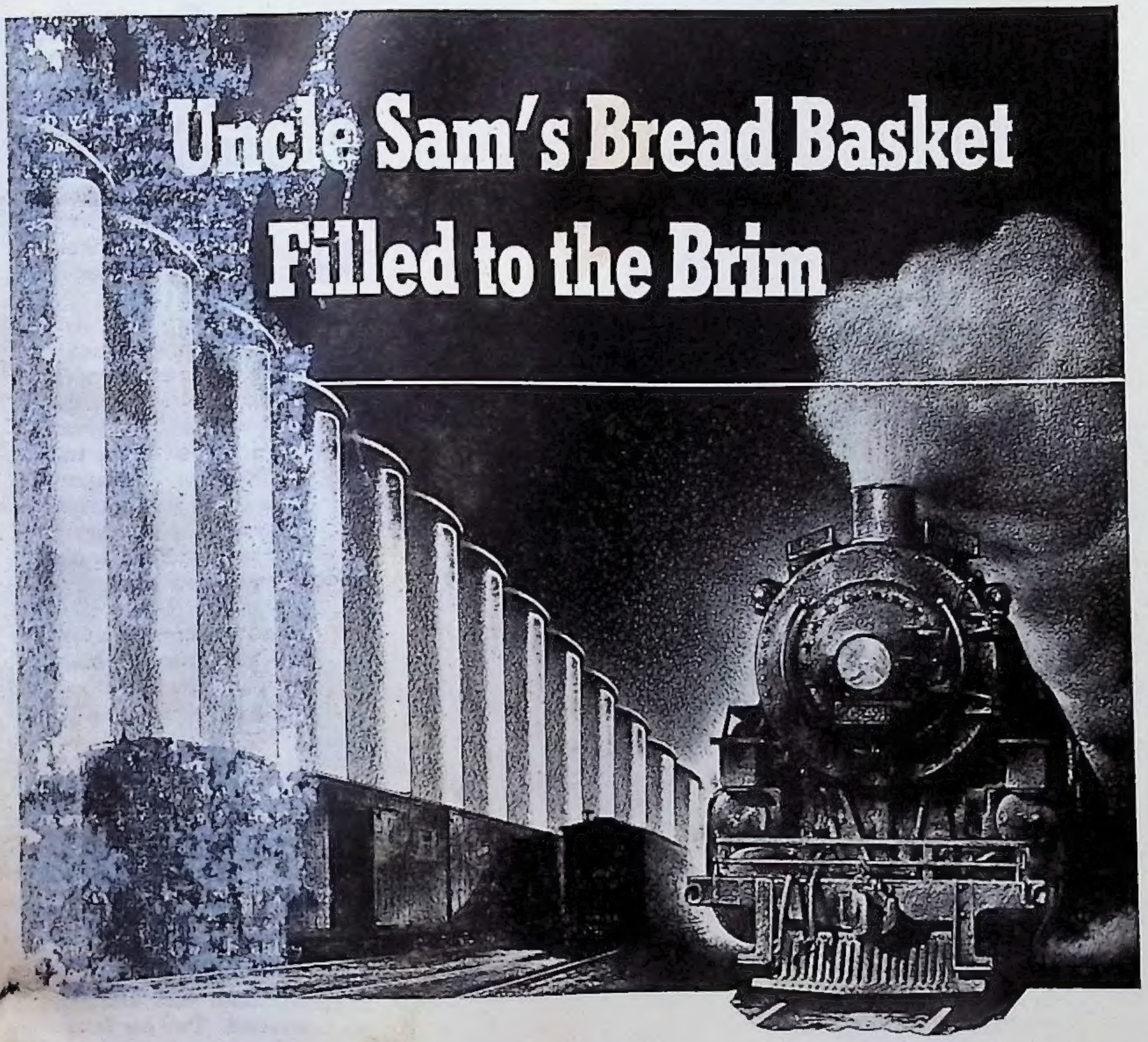
World's biggest.

No. 4002 is one of the 20 biggest locomotives in the world, recently delivered to Union Pacific. Total weight is 1,189,500 pounds and over all length, 132'-10". Here a brand new locomotive, pulling a dynanometer car, steams into North Platte, Neb., en route to duty over the Wasatch Mountains.



Arthur Stensvad, P. O. Box 634, North Platte, Nebr.

Uncle Sam's Bread Basket Filled to the Brim



LAST summer the railroads were faced with what might easily have been called an impossible task. With a near-record wheat crop ripening in the field, the elevators were still jammed with the biggest carry-over in history. And, as everybody knew, the railroads had their hands full already with a mountainous pile of defense assignments.

But the railroads refused to call it impossible. They laid their plans to do the job.

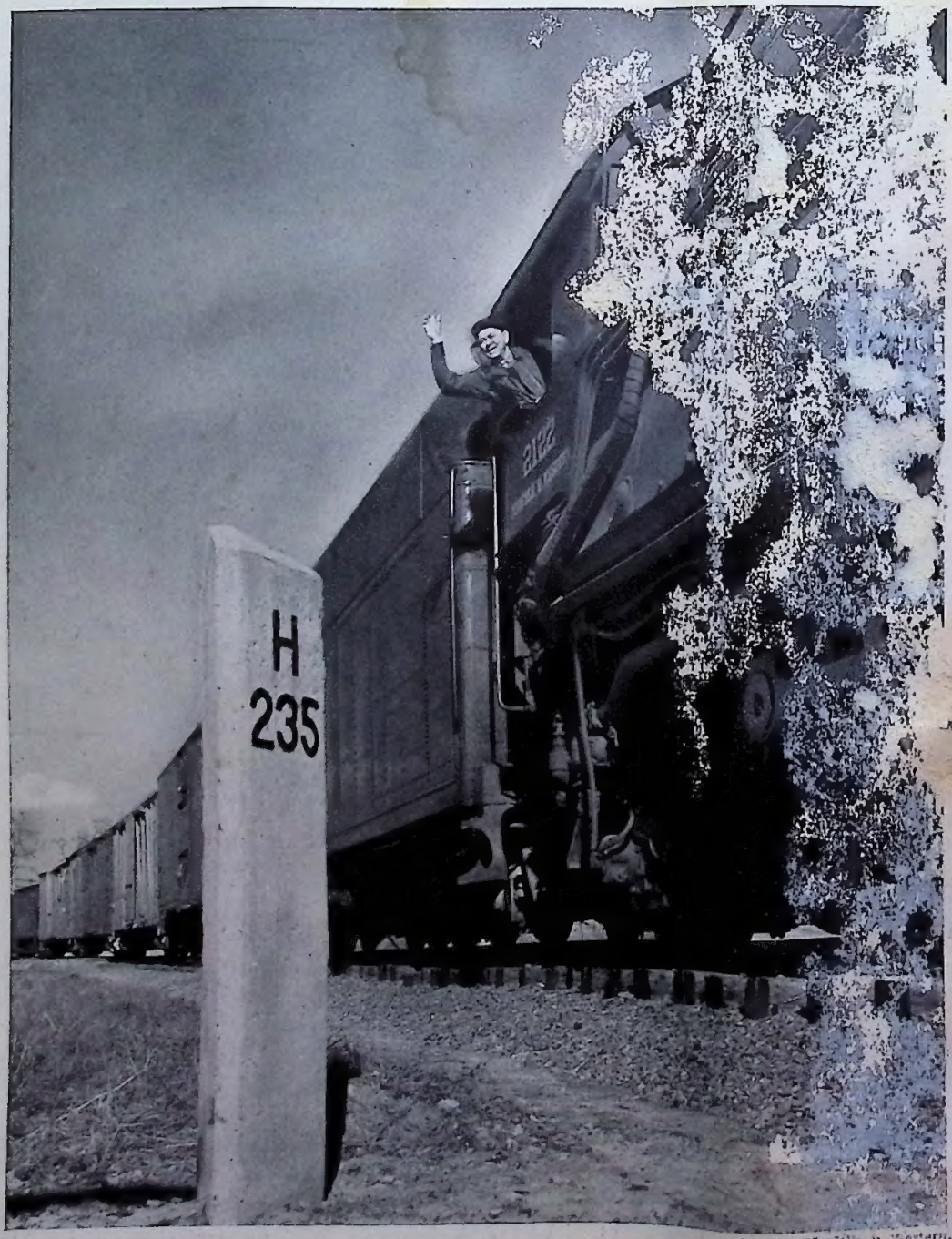
Before the first wheat was cut, the railroads had started moving old wheat out of grain-belt elevators. Altogether more than 75,000,000 bushels were shifted to more distant points. And while the loaded cars were rolling out, a reserve army of 30,000 cars was being mobilized in the wheat belt, ready to handle the new harvest.

Result? The railroads were able to move every bushel for which storage space could be found! They could have moved more if there had been any place to take it, but with elevators filled to the brim, the wheat still remaining on the farms can be moved only as fast as consumption and export make space available.

This is just one example in many of how the American railroads work together to do a job — in cooperation with shippers, agricultural representatives and government agencies. And it's also a good example of how they get the job done!

SEE AMERICA BY RAILROAD—SPECIAL RATES FOR GRAND CIRCLE TOURS...Ask your local ticket agent!

ASSOCIATION OF AMERICAN RAILROADS, WASHINGTON, D. C.



Courtesy Norfolk & Western